CHILD DEVELOPMENT
AN INTRODUCTION

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ENCYCLOPAEDIA OF CHILD AND FAMILY WELFARE SERIES

CHILD DEVELOPMENT
AN INTRODUCTION

Editor-in-Chief
LAXMI DEVI

INSTITUTE FOR SUSTAINABLE DEVELOPMENT
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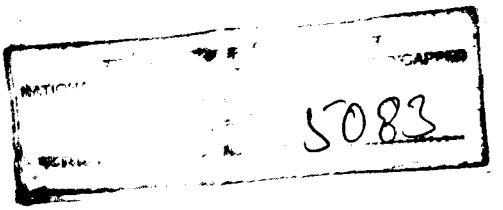

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Preface

Children are an end and means of progress. It is high time to attend the needs and rights of children not as "a mere by-product of progress but as an end and means of progress itself." Millions of children the world over are growing up in circumstances under which they will never be able to fulfil the mental and physical potential with which they are born. This is a human tragedy which contains within itself the seeds of its own renewal is imperative to break the self-perpetuating cycle which is central to development process. Without this all other investment in food production, Community Services and Human Resource Development will be less effective because a significant proportion of people neither be able to contribute fully to them nor benefit fully from them. According to UNICEF's report the two tests of civilization is how well, it protects vulnerable and how well it safeguards its future; Children are both vulnerable and its future.

Children are backbone of a Nation. On their health and prosperity depends the health of a Nation. India has the second largest child population in the World. Therefore, planning for child development needs special care and falls in the category of target based planning. It is to be viewed in totality-as a part of national social well-being. India is a developing country and quite seeable section of its population suffers from he problem of poverty, inadequate sanitation, sub standard housing, malnutrition and lack of education. Thus the development of the children in this country will basically depend on overall development of the society and people of this country. The problem of child welfare thus can not be viewed in isolation.

In the earlier days child care services were confined to the voluntary sector. These services were mainly organised for victims of destitution, delinquency, abuse, etc. In mid-twenties, voluntary organisations such as Indian Council for Child Welfare, the Indian Red Cross Society, the All India Women's Conference, the Kasturba Gandhi National Memorial Trust, the Balikaji Bari, the Children's Aid Society, etc. organised programmes in the area of care, health nutrition and education for children.

The primary institutions of the society such as family and in most cases, the joint family had been the responsibility of child care. The child's physical, psychological, social and cognitive development was assured by the resources and the surrounding of the joint family. The transition from joint to nuclear family and changes in socio-economic status have brought many changes in society. Because of the new constraints, traditional care suffered progressive erosions. Child neglect, abuse and exploitation followed.

Several disciplines are involved in understanding the growth and development of this vulnerable group. By its very nature, therefore, this is an inter-disciplinary area of knowledge and work. Social workers and educationists have been for a long time concerned more with child development and have contributed a great deal in focussing the attention of the people to the importance of several factors which should be taken care in helping children to develop fully. Considerable public opinion and the pressure of interested groups have led towards greater investment of public funds as well as private funds for the cause of development of children. It is however, necessary to understand the scientific basis of child development so that public opinion can be more informed and teachers, social workers and specialists can really contribute in a larger measure towards adequate attention of children in our country.

In view of this the present encyclopaedia encompasses a wide range of contents and approaches in its ambit and, as such it is expected to be of much interest to a vast spectrum of scholars. This Encyclopaedia is designed for use of neo-learner and divided into following six volumes: 1. Child Development: An Introduction; 2. Health, Nutrition and Early Childhood Education; 3. Policies and Programmes related to Child Development; 4. Child Labour; 5. Social Attitude Towards Children; and 6. Child and Family Welfare.

A number of colleagues and friends have provided valuable advice and assistance, hence we shall be failing in our duty if we do not express our gratitude to them. Finally we are indebted to Shri J. L. Kumar, Managing Director, Anmol Publications Pvt. Ltd., New Delhi for bringing out this work in a very short duration.

Laxmi Devi

1
Theories of Child Development

The Nature of Theories in Science and in Child Development

It can be argued that we do not need a theory of child development since everything can be explained by common sense. Indeed, there are some who dismiss all psychology as common sense dressed up in statistics. But one need consider only the history of opinions on the shape of the world to be made wary of common sense. For thousands of years it was self-evident that the world is flat; just look and you will see. A proper wariness of the self-evident has led to the development of theories in natural science based on two major features:

1. *Hypotheses must be testable:* A statement must be capable of *disproof* if it is to be incorporated into a scientific system. Thus I can say that my Aunt Mabel is a bad cook. This statement can be tested by getting her to cook several dishes and trying them out. In theory it would be possible to imagine her producing a stunning meal which would show me to be wrong. On the other hand, if I were to say that my Aunt Mabel will never win the football polls I cannot devise an experiment that will show this to be wrong because one day she may win. A popular saying, 'The exception proves the rule', is actually a shortened version of the more correct 'The possibility of an exception supports the rule'.
2. *Observed phenomena must be repeatable:* Anyone carrying out research in the natural sciences must describe the work so that another person may repeat it and thus verify it. Behind this insistence on repeatability is a search for general laws leading to experiments that can be carried out at will. To take an example: there is mild interest in the story of someone who has a dream about another person who subsequently dies; there would be tremendous scientific interest in anyone who could have such a dream repeatedly. Scientific laws might be generated if the dreams could be experienced on command.

Is a Science of Child Development Possible ?

The answer to this question is a qualified 'yes'. One can certainly make coherent statements which are testable. It is possible to carry out experiments or other investigations in a way that enables others to repeat them. But there are some aspects of child psychology and therefore of child development

which are less suitable for this rigorous approach. The work of the psychoanalytic school of psychology, discussed below, is seen by some commentators as falling outside the boundaries of science because so many of its statements are untestable.

Even if untestable theories are rejected one is left with a choice between several others. The would-be scientist has two choices open: either to select from the range of alternatives that which seen the most plausible and most far reaching in its application and to reject all others, or to take here and there from several, selecting those aspects of theories that seem most helpful. In either case it will be necessary to become aquainted with as many approaches as possible.

Why have a Theory ?

At this point the reader may wonder why theorising is necessary. Why do we not collect and record observations rather in the same way that we collect stamps. We can then watch our collection of observations grow richer and richer. Without a theoretical backing to one's observations there is no coherence to the thoughts that arise. The stamp collection analogy is not quite irrelevant: consider how much difference there is between a collection of stamps put into a book haphazardly and one with the same stamps arranged first by country and then by set.

The Nature of a Theory of Child Development

First an acceptable theory must provide *explanations for events*. A logical problem can arise in distinguishing between *explanations* and *descriptions*. For example, one might consider a table of word acquisition as a function of the child's age. Does such a table explain or simply describe how many words a child is likely to have at a give age ? In general such distinctions are rarely made—more important is the second point of whether of not a theory can accurately predict.

The predictive power of a theory is seen by some as central. Prediction here is not related to foretelling the future in a crystal ball sense: it means using observable data within a framework of a theory to predict the occurrence of other observable phenomena. For example, take a three-year- old child who has never before been parted from his mother and watch as he becomes an in-patient in a hospital which restricts visiting. Our observed data are related to his age and experience. Using attachment theory one can predict that he will be upset by this experience and will show signs of distress. This prediction can be checked. It is not likely to be confirmed in every single case because humans are so complex that few if any such predictions are 100 per cent correct. Rather, though, we can speak of probabilities of the prediction's validity.

A theory becomes more powerful when it predicts what is not already known to be true, when it *generates* predictions rather than merely confirms them. Piagetian theory, for example, allows us to generate many hypotheses about children's ability to learn.

Third, a theory must use *clear language*. Only if the basic theory is clearly expressed can one carry out experiments to test what is said. Clarity of language leads to *operation definitions,* operational here meaning that the definition is sufficiently clear that one investigator knows exactly what another meant. It is no use describing a child as 'fretful' unless one says what signs are to be observed in a fretful child.

Fourth, the theory must be capable of *disproof*. This point about testable hypotheses has already been noted above, and it applies as much to child development as to any other field if the theory is to regard itself as scientific.

Pre-Twentieth-Century Concepts of Child Development and Contributions to Theory

Science as we know it today expanded during the nineteenth century. Before then most concepts about children were derived from religious teaching. Little thought was expended on wondering why children behaved in a certain way, much more went on working out ways of disciplining them and moulding their characters. *Lloyd de Mauser*, in *The History of Childhood* (Souvenir Press, 1974), states (some would say overstates) the case thus:

'The history of childhood is a nightmare from which we have only recently begun to awaken. The further back in history one goes the lower the level of childhood and the more likely children are to be killed, abandoned, beaten, terrorised and sexually abused.'

But eventually thoughts did turn to topics related to how children *do* grow up rather than how they *should*. A major contribution to the field was made by *Lambert Quetelet*, a Belgian mathematician-astronomer who published *On Men and the Development of His Faculties* in 1859, a book that so caught the public imagination that it sold out in one day. Darwin's work, plus that of *Gregor Mendel*, paved the way for the consideration of humans as influenced both by environment and heredity—two theoretical standpoints which seem set to continue generating research for evermore.

An offshoot of Darwinian theory was a view, particularly popular during the nineteenth century, that *ontogeny recapitulates phylogeny*—that is, the development of an individual repeats the stages of the evolution of the species. Some evidence was given to support this view by observations that the human foetus does appear to develop much as other mammals but the whole nation of recapitulation is now seen as a gross oversimplification. Few psychologists today would agree with early theorists that children should, in order to be well-adjusted later, go through animal-like stages of behaviour when very young.

Towards the end of the nineteenth century *Francis Galton*, sometimes known as the first British development psychologist, supervised measurements of nearly 10,000 visitors to the 1884 London Exposition. To manipulate these data Galton developed a number of statistical techniques, including that of correlation.

By the end of the nineteenth century the field was set, with tools available, for the explosion of theory that has taken place since then. Four major theories are considered in some detail in the next section.

Assimilation is used to describe how the organism can handle new problems with existing mechanisms.

Accommodation is the process by which the organism changes in order to handle new problems which the existing system cannot manage.

The two should be seen as complementary processes.

At a more complex level one can consider the sequence of the two. *A.L. Baldwin* gives an example in his *Theories of Child Development* (John Wiley, 1967), a book from which I have drawn heavily in

the writing of this chapter. His example is of the schema of grasping. An eight-month-old child will be able to grasp certain objects, say a finger, but not something very small or very large. The gradual acquisition of the ability to grasp other-sized objects can be seen as an example of accommodation. But before accommodation can take place the object must in some sense *seem to be graspable, i.e.* The schema must to some degree assimilate the object before accommodation occurs. Since this process is so central to Piaget's work and since it often provides a stumbling block to students of his work, it will be approached more descriptively, as shown in Fig 1.1

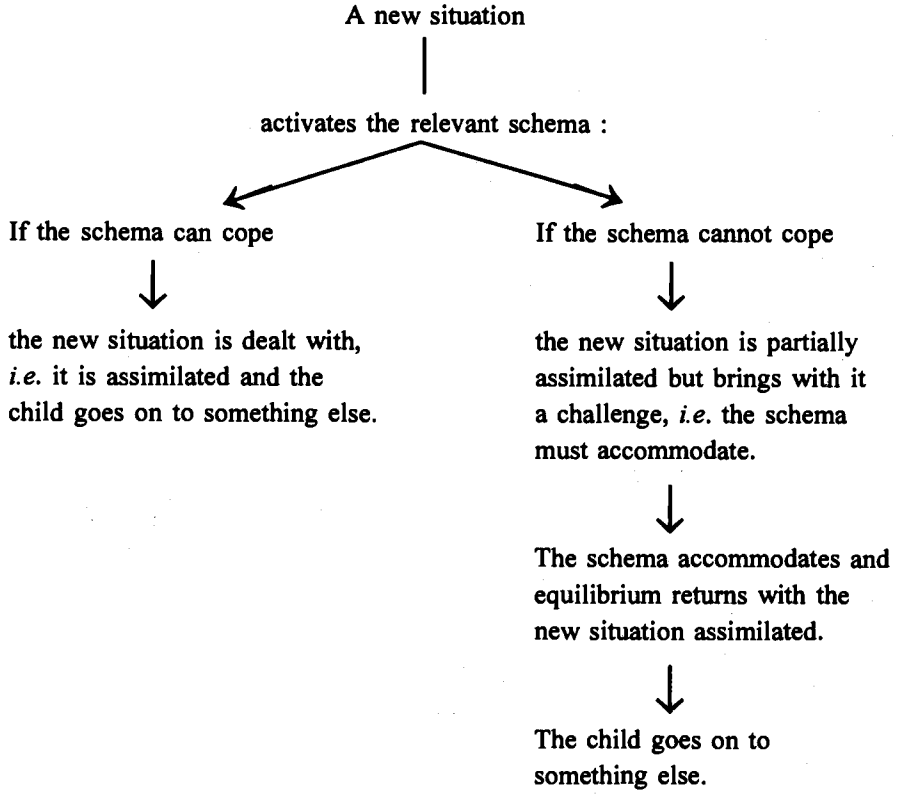

Fig. 1.1 The process of accommodation.

The model shown in Fig. 1 can go some way to explaining motivation: if something is either too easy or so difficult that there is no possibility of accommodation the organism will give up. What is required is that the new situation is sufficiently recognisable to allow some initial assimilation but also sufficiently novel to maximise accommodation. It is reasoning of this kind that has led Piaget's work to have such an impact on educational theory.

Stages of development play an important part in Piagetian theory which deals in some detail with the way in which he sees a child's understanding passing through certain stages. Here it should be noted that while Piaget perceived development as being continuous, this does not imply that there is a simple, linear path from the neonate to the fully mature. Rather certain structures underly behaviour at

certain times, so one may assert that a child is at a certain stage according to what he is capable of at that time. These structures are developed in sequence, each building on the one that went before.

Sigmund Freud

Everyone has heard of Piaget but most people cannot understand him; everyone has also heard of Freud but most do not believe him. This is a somewhat flippant but not totally untrue statement, for no other theorist on child development can have met the same degree of disbelief becoming hostility that Freud encountered. In his *History of the Psychoanalytic Movement* Freud himself noted how a former colleague (Breuer) '....showed the reaction of distaste and repudiation which was later to become so familiar to me, but which at that time I had not yet learned to recognise as my inevitable fate'.

Sigmund Freud (1856-1939) was born in Moravia, now in Czechoslovakia, then part of the Austro-Hungarian Empire, the first-born son of a superstitious mother who saw the fact that he entered the world covered in a growth of black hair as a portent that he would become a great man. Freud himself was aware of the influence that his mother's faith in his greatness had: 'A man who has been the undisputed favourite of the mother keeps for life the feeling of a conqueror....'

His father, however, was less indulgent. Previously married, financially insecure, he was stern, insisting that the traditional Jewish injunction about honouring the father be obeyed.

The young Sigmund intended to be a lawyer but found himself with what he later described as an urgent necessity to understand something of the riddles of this world. So he chose the path of science and after a diversion into physiology finally qualified in medicine in Vienna in 1881. After a spell in neurology he moved to the study of nervous diseases, then in its infancy, and went to Paris where he studied under the greatest psychiatrist of the time, Jean Marie Charcot. Charcot had made hypnotism a respectable practice, at least in some circles, and used it to investigate hysteria, long thought to be the result of a malfunctioning uterus. When Freud returned to Vienna and spoke of men suffering from hysteria he met immediate opposition and then, having demonstrated that such a possibility was to be observed, he was ignored.

Finding that hypnosis was not always adequate for his needs, he developed the technique of free association to uncover thoughts. He became even more isolated from respectable scientific circles by the publication of his theories of sexuality which he derived from what his patients said when in a completely relaxed state.

By 1902, however, he had gained sufficient acceptance to enable him to become the centre of a small group of doctors and writers including *Alfred Adler* and *Wilhelm Stekel*. Professionally he was 'professor extraordinary' at the university in Vienna, a post given for his earlier work in neurology, far from the recognition that some have seen in it. But he and his circle continued in their assertion that there was more to medicine than the body. The First World War marked a rough dividing line in Freud's work, for it was in the post-war years that he devoted himself to theoretical formulations and their application to society as a whole.

Such was their success that psychoanalytic notions and vocabulary began to permeate the thinking of the western world. In 1929 he was granted the freedom of Vienna and on his seventy-fifth birthday he was made an honorary member of the Vienna Medical Society. He received these and other honours with little enthusiasm, attending none of the celebrations and accepting nothing in person.

In 1938 he left Vienna for London. The Nazis had burned his books five years earlier but they let him go on payment of a quarter of a million Austrian schillings. In London he soon settled to a regular work routine, including seeing patients, but in 1939 he succumbed to the cancer which had afflicted him for sixteen years. He died of cancer of the mouth, greatly exacerbated if not caused by excessive smoking. He fitted neatly into his own formulation of an 'oral' personality: ambitious, envious, with a tendency to self-punishment.

Psychoanalytic Theory: Basic Principles

The central assumption of psychoanalytic theory is that much of what we do is governed by forces buried in our *unconscious*. The forces are conceptualised as being like physical energy which come from the primitive part of our personality and have to be expressed somehow. The process of socialisation leads to a need to repress or to channel these forces and the way this is done leads to personality formation. Problems of *anxiety and neurosis* can be traced to *conflicts* between the forces which need expression and the more policeman-like part which forbids this expression.

A further assumption is that all behaviour can be explained in this way—we never do anything by accident. Thus when we are late for an appointment we do not, at some level, really want to keep it; when we say something which is apparently a slip of the tongue we really do mean to say what we did. The phrase 'Freudian slip' comes from this notion. (See Freud's *The Psychopathology of Everyday Life*, 1901).

Much of psychoanalytic writing is concerned with treatment. This will largely be ignored in the following part of this chapter not because it is not important to the theory but because it is not central to an understanding of the theory's explanation of child development.

Instinctual Drives

One of the fundamental concepts of psychoanalytic thought is the instinctual drive, not to be confused with instinct in the sense that it is used in, for example, nest-building in birds. Drives in the psychoanalytic sense are seen to be the root of an almost limitless variety of human behaviour.

The assumed mechanism is thus: *instinctual energy is psychological energy.* As energy becomes accumulated in specific areas of the body, organs become tense; when the tension increases the energy breaks through as a desire—to eat, scratch, drink or have sex. Gratification occurs when the desire is met, the origin of the whole process being the paramount need to maintain life. Unfortunately Freud used terms like 'sexual' or 'erotic' to cover such pleasurable gratification, which leads to much misunderstanding of his basic point.

Libido is a word that exemplifies both much of his thought and much of misunderstanding. 'I give the name of libido to the energy of the sexual instincts and to that form of energy alone,' he wrote. But he also wrote that he saw sexuality as 'divorced from its too close connection with the genitals...as a more comprehensive bodily function having pleasure as its goal and only secondarily coming to serve the ends of reproduction'. He went on to note that the term also covered 'all those merely affectionate and friendly impulses to which usage applies the exceedingly ambiguous word love'.

Nevertheless, it is hardly surprising that some of his ideas related to libido shocked the good

doctors of Vienna. It must have been difficult for them to contemplate the notion that little boys are afraid that their fathers will castrate them or that farming is a symbolic rape of the mother.

Ego instincts is a term covering a number of other drives seen as less important than the libidinal. They included hunger, thirst and the escape from pain.

As with the theories of others, that of Freud was not static and he revised ideas on instinctive drives. Later on in his life, in 1920, he speculated on whether or not one could trace them all to a few basics. After what he described as 'long hesitancies' he concluded that all could be reduced to two: *Eros,* or the life instinct, and its counterpart, *Thanatos,* the death instinct. The latter was an inevitable part of the theory for if he was asserting that all behaviour is explicable is was essential that he invoke some mechanism to account for suicide, masochism and self-destructive acts.

Cathexis is the notion which links the instinctual drive to actual behaviour. Once one has conceived of a drive almost as though it were physical energy then that energy can be attached in varying quantities to different objects, people and ideas: this particular form of attachment is called cathexis. One can observe a child and his mother and see how important she is to him; one can then argue that for him she is cathected. An important corollary to this idea is that the greater the cathexis in any one direction the less there is to go round to others. A child who remains fixated on his mother is unlikely ever to reach sexual maturity.

The Unconscious

Consciousness defined by *David Stafford Clark* as '... an immediate, constantly changing reflection of everything of which we are aware at a given instant in time', was seen by Freud as no more than a relatvely small part of an individual's mental life.

Preconsciousness is the storehouse of memory: everything that is available to us when we try to recall.

The *unconscious* contains both the more primitive drives and impulses influencing our behaviour without our ever being aware of their influence, plus every set of idea or memories which have a strong emotional charge and which have been repressed so that they are no longer available to the conscious process. It is important to avoid falling into the trap of thinking that unconscious refers only to that of which we are unaware; by definition it is referring to that of which we *cannot* be aware.

The Id, the Ego and the Superego

Freud saw the development of socialisation from child to adult not in terms of different instinctual drives or even different amounts of drives but in the pattern of cathexis or other regulating mechanisms, which determine how those drives are satisfied. The pattern of cathexis he described in three more terms :

1. *The id.* To understand the concept of the id one must first be aware of what Freud called *primary process*. The young child knows what he wants and he wants it now and he is not prepared to wait and no matter how often he is told that he cannot have it he will stamp his feet and have a tantrum because he wants it now and he really does not care what other people think about him. This is primary process functioning and it governs one structure of the personality known as the id.

Another way of characterising the id is to see it as governed by the *pleasure principle:* only immediate pleasure, which can include relief from pain, is taken into account. It is no use telling a young child that treatment in the dentist's chair will lead to less pain in the future: what counts is the pain the dentist is inflicting now this minute.

2. *The ego* is the second system to develop within the child's personality system. The id remains within the unconscious; the ego is that part of the unconscious which has been separated in order to make contact with the external world. Above all else, the ego is realistic, it delays and inhibits drives, representing the role of enlightened self-interest. Gratification is still the goal, but gratification gained in a more mature way than is found if one follows only the id, for the ego is capable of delaying gratification to make it the greater.
3. *The superego* is a rather different matter. There is no direct conflict between the id and the ego, they differ only on how to attain their ends. The superego, on the other hand, has somewhat different aims.

The superego is that part of the personality which restricts totally rather than modifying the drives of the id. Freud saw the superego as playing a policeman-like role, acting to serve the good of society as a whole by curbing the self-seeking energy of the other two aspects. Freud emphatically did not, however, see the superego as being culturally determined, no matter what its function. Rather, he saw the child develop a superego as he interpreted *parental injunctions* on sexuality. In this way the restrictions imposed by a superego may be out of all proportion violent and extreme. In such cases the ego can be seen as an intermediary between the id and the superego.

The Freudian Theory of Psychodynamics

The concepts given above form the bricks of Freudian theory; they operate together in a psychodynamic system.

A cornerstone to the theory at work is that action is controlled by consciousness. Thus although much may come from the unconscious it can never directly influence behaviour. A crucial area of study then is *the conditions which detemine access to consciousness.*

One condition is that the nature of consciousness is such that its content must be *perceptible.* Some content is obviously so—what is seen, heard or smelt, for example. Most mental events are not so easily perceived and so become attached to verbal labels. One theory of why we cannot easily remember events of our first couple of years of life is that they happened during our pre-verbal phase.

The second condition is the level of cathexis, which must be sufficiently high. In everyday language one can say that we tend to think more about things that are important to us than those which are not.

Defence mechanisms exist to prevent the overwhelming of consciousness by thoughts which, if allowed to remain, would be too painful to bear. Guilt at remembering something we would rather not have done, anxiety in the face of some dreaded event, sorrow at the thoughts of loss— all bring pain if allowed to run riot in the mind. The following are some ways of dealing with them:

Repression: the idea is relegated to the unconscious and 'forgotten'.

Displacement: replaces one item with another, more acceptable. Thus excessive hand washing can be seen to replace masturbation if the latter is thought of as guilt-laden.

Reaction formation: changes one motivation to the exact opposite, so hatred can be manifest as kindness.

Projection: involves the attribution of the dangerous drive to another. We always see in others our own greatest faults.

Denial: The last and in some ways the simplest to understand. When we deny in a Freudian sense we see the world as we want to, not as it really is.

These defence mechanisms have been described individually but to some commentators they fall together in certain patterns or styles in individuals, reflecting the style with which the person deals with his environment as a whole, not just with the unpleasant aspects.

One word of warning: it is sometimes assumed that defence mechanisms are somehow bad and that the mentally healthy person does not need them. This is a misunderstanding; there are times when only a well-functioning defence keeps a person sane.

The Application of Freudian Theory

Just as Piagetian theory has a main area of interest in the development of understanding, so psychoanalytic theory is most relevant to an understanding of the way the personality is formed.

Criticisms of Psychoanalytic Theory

As Freud himself discovered, it is very easy to be critical of his theory, especially when points are taken out of context. Apart from isolated sniping there are three major areas of weakness.

The first is the relative inaccessibility of the main data of the theory—namely thoughts and feelings. Thoughts and feelings do not readily lend themselves to operational definition and so one of the basic requirements of a scientific theory.

Second is the tendency of some psychoanalysts to ascribe opposition to their ideas to resistance and repression on the part of their opponents. 'If you do not agree with what I am saying you must be repressing the truth' is as near an untestable hypothesis as one can get.

Third is the undoubted fact that most of Freud's patients on whose free associations he based his work were middle-class Europeans brought up in a society where sexual matters were not openly discussed.

Such a task is perhaps as good a test as any if one is seeking to come to conclusions on the value of a theory. They will also be able to examine the work of *Erik Erikson,* one of Freud's followers who has developed certain aspects of the approach in a way that may be more acceptable to the modern reader.

Learning Theory

Learning theory, sometimes referred to as *Stimulus-Response* theory, or S-R for short, stands in stark contrast to the two approaches already mentioned in this chapter. One characteristic is that it is not associated with one person; instead three major figures have contributed to the approach.

Ivan Pavlov (1849-1936) was an almost direct contemporary of Freud and shared an interest in physiology. He studied medicine in St Petersburg and after a spell in Leipzig returned there as professor at the Institute of Experimental Medicine. While conducting experiments on digestion he noticed that

the dogs he used in his laboratory sometimes salivated in anticipation of the food they received. This observation led directly to a study of the way in which the dogs' responses of salivation were learned or conditioned.

He summarised his findings in five laws which became known as *classical conditioning theory* (see below), thus becoming the father of S-R psychology.

J.B. Watson (1878-1958) followed Pavlov in his interest in a study of stimulus-response relationships but rejected the Russian's idea that behaviour is maintained by reward, arguing instead for the power of *frequency* and *recency*. He also rejected all notions of the unconscious and any other so-called mentalistic concepts like sensation and will. His contribution to academic psychology was curtailed as he had to resign from his post at Johns Hopkins Univerity, USA, in consequence of a liaison which led to his divorce. He moved to advertising, where he became even more successful in the practical application of his theories than he had been in their academic exposition.

B.F. Skinner (1904) was born in the USA and has been at Harvard University since 1948. He built on the ideas of both Pavlov and Watson but distinguished between two types of behaviour: *respondent,* when an organism responds in a simple way to a stimulus from the environment, and *operant,* when the organism behaves in a goal-directed way to change the environment (see below for a further discussion of this).

He applied this ultra objective approach to a very diverse range of behaviour including children's learning from machines and pigeons playing ping-pong.

Basic Principles of Learning Theory

Although the first person to be mentioned as influential in the development of learning theory was Pavlov, the roots of associationism and the role of learning in child development can be traced to the eighteenth-and nineteenth-century British empiricists Locke, Hume, Mill and others. A characteristic of the eighteenth-century view, however, was that it was two *ideas* that became associated, whereas Watson asserted that only *behaviour* was the proper study of psychology. Although this extreme view is no longer held by some behaviourists—indeed, there is now a growing school which deals in thoughts and ideas calling itself *cognitive behaviourism*—for many years and to some extent still psychologists who followed the S-R tradition ignored everything except behaviour. Their argument is simply that we can observe and measure behaviour objectively, we cannot do either with what goes on inside someone's mind. It is better, therefore, to take a 'black box' approach to thoughts; if we came across a black box with a lot of wires and gauges coming out of it we could watch the gauges and make up rules to predict what they will do without ever opening the box or without knowing what is inside it.

In the first and last analysis, argue these theorists, *behaviour is the result of learning.* We do something because we have been reinforced for doing it, or some very similar act, in the past. We refrain from doing something because we have found either that it brings no reward or that the consequences of such an act are unpleasant. Put like that the theory seems so simple that it is hardly worth stating, yet there has been built on this simple foundation a complex edifice which has had an enormous effect not only on the way children are brought up but in the assumptions that many people have about the way life should be led. If psychoanalytic views have passed into the accepted way of thinking of many writers and artists, if Piagetian views have become part of the wallpaper of many

educational systems, learning theory has had its influence on political thought, particularly in the years since the end of the second world war.

Classical Conditioning

In Pavlov's original observations he noted a sequence: a dog is given food and immediately salivates. The food is called an *unconditioned stimulus;* the salivation is an *unconditioned response.*

Conditioning occurs when the unconditioned stimulus is paired with some other stimulus. In Pavlov's case a bell was rung just before the food was presented; the ringing became the conditioned stimulus since the dogs salivated to the sound of the bell. Salivation to the bell become known as the conditioned response. We can bring the picture nearer home by considering how a school bell, heralding the end of a lesson, can bring immediate relaxation, or excitement, depending on the age of the child and the nature of the lesson. The point is that it is not the sound of the bell itself that brings the change of behaviour, it is the fact that the bell has in the past been associated with relief from tension or boredom. The sound of the bell has become a conditioned stimulus.

The timing of the pairing of stimuli is crucial; the longer the interval that elapses between them the weaker the effect. Some would argue that this is why imprisonment so often fails to stop people committing further crimes—there it too great a period between the crime and the imprisonment. The general state of the organism is also of importance. A hungry dog is likely to condition more quickly than one that is satiated; a child must reach a certain level of understanding before conditioning will take place, although the behaviour of very young infants reveals that they can respond to some conditioning.

Operant Conditioning

Sometimes called *instrumental conditioning,* the operant principle can also be illustrated by an animal experiment. A rat is put into a box with a lever in it. At first the rat will explore the box but may not do anything with the lever. Eventually the lever will be pressed and a pelled of food drops into a nearby tray. The rat eats the food and sooner or later presses the lever again and has more food. Eventually the rat presses the lever frequently and becomes satiated, when he stops the lever activity.

The difference between the two approaches is that in operant conditioning the reinforcement comes after the response, *i.e.* the rat has to do something to get the reward, whereas in classical conditioning the response comes second (salivation comes after the bell rings).

A difference in outcome between the two approaches is that operant mechanisms can be used to link any tow bits of behaviour if the reinforcement is sufficiently strong. In this way randomly occurring actions can be selectively reinforced and behaviour shaped over time. This is how Skinner taught his pigeons to play ping-pong; it is an explanation for much human behaviour, including speech. (Think of the shouts of joy that greet a baby's first 'word'.)

The *nature of the reinforcement* is tricky. For some it is anything that leads to an increase in behaviour. Others prefer the notion of drive reduction; it is anything that leads to the reduction of uncomfortable drives like hunger or thirst. More recently is has been noted that even turning on a light in a cage will increase behaviour of some sort and the theory has grown up that any stimulus change is reinforcing. Certainly one should be aware that there is far more complexity and subtlety to the

concept of reinforcer than just 'something obviously pleasurable'. One interpretation of children's bad behaviour is that the resulting smack is reinforcing because it is more rewarding than being ignored.

Extinction occurs when the conditioning becomes undone. If a bell sounds but there is no food the dog will eventually stop salivating to the bell; if the lever pressing produces no food the rat will stop that activity.

It might be worthwhile at this stage to pause to consider ways in which children's behaviour becomes extinguished either at home or at school. Perhaps there is a lesson to be learned which might with value be applied to the often asked question on why there is such a change in attitude to school between the ages of 10 and 14 'Adolescence' can explain some of the change but it is possible that there is also, for many children, a different pattern of rewards.

Inhibition is not the same as extinction; this distinction is of vital importance to anyone working with children. Inhibition occurs when a behaviour is punished, *i.e.* the inclination to do something may be there but it is overlaid by the anticipation of punishment. Thus there is a crucial difference between inhibition and extinction; if a piece of behaviour is extinguished it is unlikely to occur in *any* circumstances, whereas if it is inhibited it *will* occur if it is thought that the restul will escape punishment. This distinction also helps partly to explain the relative failure of our penal system, and perhaps says something about discipline in schools.

Partial reinforcement is an aspect of the theory that at first glance appears to make no sense at all but which, on reflection, explains a great deal. The theory is simple: any behaviour which is consistently rewarded will extinguish more easily than that which is rewarded inconsistently. There is no printing error in that statement; for once a psychological argument is put forward advocating *inconsistency* as a powerful weapon in determining behaviour. An everyday example of the power of partial reinforcement is gambling: the gambler is rewarded from time to time. When he has a losing run he is buoyed up by the memory of that big win he had ten races ago, and there was always the little win he had five races ago and so there is always the chance of another big win in a couple of races or so, because after all, one knows that one cannot win every time. Another everyday example, closer to home for the student of child development, is the child who learns that constant, whining demands will eventually bring the ice cream or the extra bar of chocolate that has once or twice been refused.

There is, of course, another side to this coin: that the adult who can manage to be completely consistent in dealing with children will not be in the position of having given partial reinforcement and will, therefore, be far more in command of the situation.

Secondary conditioning. Think back to the dogs salivating to the sound of a bell. If a light is paired with the bell, then the light can become a *secondary conditioned stimulus.* In the experiment with pressing a lever it is possible to pair tokens with lever pressing, the token being exchanged for food pellets. It does not take a vary large conceptual leap to get to *money as a secondary reinforcement*: the actual value of any single coin is generally very small yet the power of money to influence behaviour is incalcuable.

Generalisation is further, valuable concept when one is trying to apply learning theory to everyday life. The basic point is that if a response has been conditioned to a *particular stimulus* then the organism is likely to respond to *similar stimuli.* In other words, there will be a generalisation curve which can be

traced according to the similarity of the presented stimulus to the original one. One of the earliest examples of this is the response of the very young baby to being picked up and held by anyone: there is usually a quieting of behaviour. When the baby becomes older and able to discriminate the mother from other people the generalisation no longer pertains because the presented stimulus (the stranger) is not sufficiently similar to the original (the mother).

Criticism of Learning Theory

One of the fundamental criticisms of learning theory has to do with the *definition of a reinforcer*. A reinforcer is whatever leads to an increase in behaviour, and whatever leads to an increase in behaviour is a reinforcer, and so one goes round in a circle without ever really being able to come to a proper definition.

A criticism based on *historical observation* is that the original, hard-line theorists have been forced gradually to retreat from their position of S-R and nothing else and have had to admit that there are more things in heaven and earth to be included in any account of human behaviour. The purist, for example, dealt only with muscular movements as responses, the brain being seen as a static mediator of nerve impulses. It is now acknowledged that there is more complexity to behaviour and to neural mechanisms than was originally postulated. What is more, notions of expectancy and intention have to be incorporated into the system if it is adequately to explain behaviour.

Perhaps most important of all, the black box referred to above has been opened, and thoughts are now seen as important for some theorists. Indeed, thoughts are seen as bits of behaviour. To early thinkers this is heresy; to more recent workers it is an inevitable modification of an approach that promised much but not always provide all the answers.

Sociobiology

Spiders spin webs, birds migrate, cats even when fed out of tins, chase small moving objects. These example of behaviour are properly seen as genetic in origin, owing nothing to environmental pressures. Sociobiology is *the systematic study of the biological* basis of all social behaviour, to quote *Edward Wilson's* book *Sociobiology: The New Synthesis* (Harvard University Press, 1975), which marked the beginning of a study of human nature based on Darwinian theories of natural selection and an understanding of contemporary genetics. Natural selection argues essentially that our genes are selfish, that behaviour leading to further reproduction of the species will continue while other behaviour will, by definition, wither. It will wither by definition because if it does not lead to the furtherance of the species then that species will die out.

An example of sociobiological theory in humans is the *incest taboo* claimed by Wilson to be among the universals of human social behaviour. There are immediately obvious reasons why this taboo should be practised so widely: offspring from incestuous relationships are biologically weaker, so it is arguable that any society accepting incest as a norm would very soon weaken itself. There is further support for the notion from a study of kibbutzim in Israel: children brought up together as thought they were siblings show little if any interest in each other sexually.

The argument is taken a step further in considering attitudes towards the disabled or deformed. Animals rarely if ever rear such young—even the weakest in a litter, although not deformed, may be

left to die. Similarly, the predominant human response throughout the ages has been one of rejection. In parts of Britain it was not unknown for a disabled baby to be buried alive with the mother (see *Child Life and Health*, edited by R.G. Mitchell, J. & A. Churchill, 1970).

Sociobiologists trace *the origin of all behaviour, animal and human, to the gene*. They admit that cultural differences exist between groups of humans but they see in human universals far more powerful similarities than differences, universals which, in the words of D.P. Barash, provide 'our strongest evidence for the legitimacy of human sociobiology'.

Specific aspects of the biological debate, particularly that related to intelligence, are discussed later in this book. There it will become clear that a wholly or even mainly biologically based explanation for human behaviour is not without its critics. Two groups of critics have been some behavioural psychologists, notably B.F. Skinner and sociologists.

Skinner, as was outlined above, sees all behaviour as determined by patterns of reinforcement. Although in a 1981 paper entitled 'Selection by Consequences' he tacitly admits that evolutionary pressures can affect behaviour, his fundamental position is that 'a person is not an originating agent: he is a locus, a point at which many genetic and environmental conditions come together in a joint effect'. In other words, all that we do is a result of conditioning, we are not free agents.

Sociobiologists, and others, argue that Skinner is basically wrong. A fundamental flaw is that he rests his case solely on empirical evidence—that is, evidence based on observation and experiment. As *Roger Trigg* has pointed out in his book *The Shaping of Man* (Blackwell, 1982), 'the view that the whole of human nature lies open to scientific investigation... can never itself be empirically proved'. What is more, discoveries *about man* are being made *by man* and while it may, just, be possible for man to treat other men as objects the cannot take this approach towards himself. If all scientists were as Skinner describes all men, they would all be constantly at the mercy of prior conditioning and would be dealing in the consequences of conditioning rather than possible truths. (I have drawn heavily on Trigg's work in writting this section.)

Sociologists, those who study societies rather than individuals, see man as shaped by society and not by anything else. An extreme statement of this position can be found in *Durkheim:* 'Every time that we find that a social phenomenon is directly explained by a psychological phenomenon we may be sure that the explanation is false.' A man, to such sociologists, is only a man to the extent that he is civilised. While allowing that biology places limits on behaviour—neither elephants nor man can fly—sociologists see man reproducing not as biological but as social beings and they point to the enormous diversity of human cultures as support for their view. As one biologist has noted, only about 100 generations have passed since the Roman Republic. This time span is too short to have allowed very much genetic variation; yet human societies have changed to an extraordinary extent.

The sociobiological response to sociologists is one of flat contradiction. What is extraordinary, they assert, is that human societies are so similar, as the quote from Barach on universals bears out.

Roger Trigg, although seeing much to support in a sociobiological view, writes from the standpoint of philosopher and sees a fundamental weakness in the biological explanation of all human behaviour. His point is that man, uniquely, has consciousness. This sets him aside from animals and so arguments about birds migrating are interesting but not wholly relevant for man. A consequence of consciousness

is *religious thought* and *moral behaviour,* neither of which is satisfactorily explained, to Trigg at least, by invocations of selfish genes. He anticipates the assertion that religiously based self-sacrifice is really based on a form of selfishness with the point that loving others for one's own ends is not the Christian definition of love and does not lead to salvation. He could have added that other major religions make the same point.

Genes or Society ?

So far this section has been written as though all those concerned think only in black and white terms. Unfortunately, the argument about the place of genetics so easily becomes political that polarisation seems inevitable. In fact, as so often happens, extreme positions soften. This process has occurred among sociobiologists. *Edward Wilson,* in a book published with *Charles Lumsden, Genes, Mind and Culture* (Harvard University Press, 1981), admits that sociobiology 'has not taken into proper account either the human mind or the diveristy of cultures'.

One compromise is to see *genes setting the stage and society writing the play*. In other words, biology sets limits but environmental factors determine how a person will develop within those limits. This is an attractive compromise but it merely avoids the real issue. The real question admits both biology and environment but asks: which is *more* important ?

2

Child Development : Theoretical and Conceptual Issues

I

The meaning of the word 'development' has become blurred because it has been substituted by popular speech. This term has been used by different people to denote various phenomena. Laymen, tribals, ruralites, westerns, orientals, rightists, leftists, politicians, all use it in different ways. When a scientific term is used in popular speech, it often loses its significance.

The concept has a cognitively-pluralistic connotation, as it has a multi disciplinary significance. Economics, political-science, psychology, anthropology, and sociology have used the term in different contexts. The single term has a diverse conceptual connotation. The term has political implications, and has been used as a political instrument for the obtaining of votes, 'under-development' has been replaced by 'developing countries,' which does not change the connotation but puts on a garb of respectability. Terms like 'newly developing countries', 'new emerging countries' have also been used to substitute the earlier term 'under-developed.'

Interestingly, the term has trapped the intelligentsia, who often focus on the development process, ignoring the roots of 'under-development.' The developed countries have exploited the resources of developing nations. The network of exploitation, the hidden structures of exploitation, have been largely neglected by social scientists. Sponsored researches, generally, are oriented to the evaluation and study of the impact of planned developmental schemes initiated by the government.

Lewis[1] and Scalpino[2] did not make any distinction between these terms an international stratification system has been created through the coining of terms like MDC (more developed countries) and LDC (less developed countries). These concepts paved the way for the inculcation of western values and ideas concerning development. The ruling elite desired their countries to be modelled on the western paradigm of development. The indicators of development were defined by western societies. Sponsored researches by international organisations, and financial support given by them, institutionalized the western paradigm.

This has several consequences of psychological, social and cultural dimensions. National pride and historicity of traditions were influenced negatively. The new development programmes changed the traditional social fabric to an extent and it was considered correct to replace it through creation of new institutions.

'Sociology of Development' is a recent branch of sociology. The economists' view of development has been the dominant one for a long time. Decision makers have often turned to economists rather than sociologists. Applied economics is a great deal more popular than applied sociology. Sociologists have been conspicuously missing from planning offices, committees and commissions.[3]

The reason for this lies partly in the internal academic structure of sociology. For decades, our gaze was fixed intently upon functionality and system maintenance, and social change was kept tucked away in a corner of our consciousness.[4] The international context of development and under-development is a significant area at a micro-level in the analytical frame work. The neo-Marxist approach stresses the need to understand the world as a totality, as a single integrated unit.[5] The induced dependence tends to be total—economic, political, cultural, and social. There is enough money for population programmes, family planning, agriculture, health literacy and environment. The solutions and instrumentalities come from rich countries in the form of an aid or a loan. This is a mechanism to perpetuate economic dependence, cultural dominance, and political hegemony.

Whole hearted transplantation of western medical practice into countries, such as Zambia, has been a disastrous mistake. New solutions, which make use of cheaper and less sophisticated technology, as well as personnel with skills more limited than those of fully qualified physicians, are badly needed. Yet, this has not become possible because the elite want the same treatment which westerners have access to.[6]

In China, success in the field of modern medicine is the result of the fact that it fits into the overall structure of the society.[7]

Some believe that 'population' is part of the richer world's scheme to maintain control over the rest. Hence, the notion of population explosion is related to imperialism. The western mode and model of development has created a network of subterranean exploitation, whereby under-developed countries are systematically sucked of their natural resources, cultural imperialism is imposed on them, and they are economically so trapped through loans, aids, debts that, politically, they are perennially slowed.

The notion of development is linked with dependence. There is certainly a need for change through revolution in the existing world system. In fact, the world is divided into nations at the centre and nations at the periphery. The nations at the centre are the developed western countries who systematically create conditions of dependence for nations at the periphery; which are the developing nations. The centre *within* the nations of periphery consists of the elite who, for their development, support the ideology and instrumentality of the nations at the centre. Such a situation leads to perpetuation of under-development, coupled with development of the elite of the nations at the periphery.

The micro-level programmes at village level have improved the quality of life, but the very targets need reconsidering. Planners ought to start with the social and 'human' dimensions, and work backwards to the necessary growth rate.[8]

Even if one were able to identify, quantify, and frame policies for the relief of poverty of the urban and rural deprived, they would be ineffective unless they took account of the reactions of interest groups of the elite.[9]

Even *news* has become a marketable commodity, and the news media in the Third World, even when they are in the hands of the government, operate as part of international corporate capitalism. The wholesale transplantation of western medical practices to developing nations has been a disastrous mistake and that new solutions, which make use of cheaper and less sophisticated technology, as well as of personnel with more limited skills than those of full-blown physicians, are badly needed. Yet it has not been possible to break "medical imperialism." It is necessary to ask questions about education and literacy, and their social and cultural relevance for the developing nations.[10]

Rich countries are polluting the environment and react to the 'eco-threat' very strongly. This is a plot.

The theories of development are many. The functional, evolutionary, dialectical, psychological theories of development have been over shadowed in recent years by the advance of the 'Dependency' and the 'World-System' theories.

II

The concept of ethno-development has assumed great significance in the context of developing nations. Generally, the concept of development has been identified with the development of western nations, which emphasizes material, and mundane aspects of development along with formations of complex and large scale organisations for the accomplishment of economic growth. In such a notion of development, the person becomes the slave of technology, and there is emphasis on consumption for social conspicuousness. Obviously, in such a model of development, the individual and the social dimensions are relegated to the background. The plurality of cultures, as revealed in different societies, in the contemporary world, exemplify that human beings have developed different styles of life, customs, traditions, and institutions, which have emerged out of their cumulative experience. Thus, the institutions of social hierarchy, marriage, family, property, inheritance, etc., tend to differ from one society to another. Even systems of law, bureaucracy, justice, and polity are dependent upon indigenous situations and social experiences. A comparative study of different cultures reveals that each culture has its own mechanism to deal with problems, and hopes and aspirations.

The western model of development has become dominant because of economic power which, in turn, has made it also politically powerful. Thus, the developing nations have been conditioned to feel that they lag behind in dimensions of societal growth, and, therefore, in order to keep pace with western societies they also ought to accept and adopt their values. Incidentally, for several decades, this model of development was accepted without any debate. However, in recent times, the invisible structures of western societies are being discovered, and their hidden motivations unearthed, by intellectuals and activists both in developed and developing nations. The notion of an ethno-social model of development focuses on the following issues :

(*a*) The model of development should be constructed in accordance with historical traditions, value system and social reality.

(*b*) The developmental plan should be formulated in accordance with the felt needs of the people.

(*c*) The concept of ethno-development should emerge from the historical reality as well as prevailing social conditions.

(*d*) Structures and instrumentalities, processes and products, through which developmental need is sought to be realised, ought to be created in such a way that they are in consonance with felt needs, social reality, and accepted generalised goals.

(*e*) The local resources, both human and natural, should be so exploited that they are used as means towards achieving the development of all classes.

(*f*) The exploitative structures of western societies, which have entered into economy, polity, and culture in the social fabric of developing societies, ought be seen not only with suspicion, but also used selectively and with great care.

(*g*) The ethno-developmental process should be incorporated in governmental programmes and activities, as well as those of non-governmental organisations.

Thus, the innovation of ethno-development becomes significant at several levels of planned and non-planned social change in the Indian context. No society is static, and Indian society has witnessed two changes during its historical process of development. The main social change has emerged from within, *i.e.*, is indigenous; while the other type of change has come from outside, or exogenous change. The nature of Indian society has always revealed strong adaptability and resilience to changes, wherein, despite continuous influx from the outside through conquest or migration, the Indian society has been able to imbibe selectively many aspects of culture of the invaders or migrants which came to India and made it their home. There are examples in styles of life, food habits, dress patterns, values, etc., which reveal that Indian society was very flexible and catholic. Thus, the plurality of Indian society and culture can be explained on the basis of its structural resilience and adaptation. The Indian society has, therefore, developed into a mosaic, characterised by diversity within unity. From within also, there have been several movements and revolts which challenged the system whenever it was denigrated by dogma and crisis. This aspect of social change in India, through the historical process of time, has been neglected by social scientists in their analysis. No plan or programme can be effective unless traditions are taken into account along with the contemporary situation. It is true that several dimensions of Indian social life became dogmatic and ritualistic which led to degeneration in certain areas. These have persisted despite changes in the social milieu. Thus, a particular practice was approved by a particular moment of history due to peculiarity of certain circumstance in the society. When these circumstances do not exist, there is a need for automatic transformation, so that irrelevant practices are replaced by new institutions and structures.

The contemporary governmental programmes should be seen in the context of the structural and cultural peculiarities of our nation. These are of various types; some are intended for specific categories which have been deprived socially, politically, and economically for a long and continuous time. The programmes oriented towards SC/STs can be categorised as those which deal with specific categories. Similarly, programmes oriented towards women belong to the same category. The status of women in Indian society has several levels of understanding and analysis. These levels reveal ideology and

difficulties of women in India glorified as goddess on one hand, and enslaved on the other. The actual process, customs and traditions reveals that women, for several centuries, have been put to severe discriminatory treatment by different social institutions. She has been kept in *Purdah* and involved in domestic work.

Her glorification is a device to prevent any attack on the system which produces her factual subordination, exploitation, and discrimination. She is structurally deprived of fuller expression of her potentials. She is confined to household tasks, denied public self expression, and suffers familial neglect. Her education, health and well being are part of institutionalized neglect, non-care, and non-support.

There are several levels of this discrimination. The rural woman is deprived, first, because she is a woman; secondly, she is a rural woman; then, she is exploited by market forces-low wages; and lastly, if she belongs to a low caste, the caste hierarchy itself leads to further discrimination. Thus, women, as such, constitute a disadvantaged group, but certain categories suffer more from multiplicities of deprivation.

III

The present study focuses on planned change within a rural setting, through a specific programme, "Integrated Child Development Services" (ICDS).

The process of development in rural India focuses on specific aspects of deprived sections of the society. The developmental process relates to people in general and women and children, rural poor; and SC and ST in particular-specifically in areas of literacy, health, employment, agricultural development; and eradication of certain social evils. The spcific programmes related to women and children focus on family welfare aspects; limiting the size of family; improvement in the conditions of health of women and children and literacy and education of particular categories. The ICDS programme is specifically oriented to Indian women who undergo large number of pregnancies in their life cycles. In a traditional society, the routine and settled life of woman was considered to be in the home and the health. Large numbers of pregnancies did not create any problems, but as the norms of a better standard of life and a fuller expression of personality were accepted, family size became important. The problems related to large number of pregnancies, thus, became self evident.

Women in Indian society have suffered several physical, social and cultural constraints and have been suppressed to such an extent that, neither health, nor education were considered as important aspects of personality development. The rural women of all middle and lower castes were engaged in suporting the family in one way or the other, and contributed to the overall economy of the village and the family.

They develop specialised skills in the process of their socialisation. The professions which require specialised skills; pottery, weaving, ironsmithy, agriculture, carpentry, etc., also require the support of rural women and, thus, women, as a social category, were an intimate part of the economic structure of rural society. The women, besides this task, institutionally performed the domestic role of maintaining the household. They were also required to strictly adhere to normative framework of values and work, and were subject to certain patterns of behaviour. The custom of *Purdah* in Rajasthan, the *Sati Pratha*, the dowry system, female infanticide, and widowhood,etc., led to structured conditions of low status.

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Under these structural and cultural conditions, the female population in Rajasthan has been exposed to greater health hazards, discrimination on the basis of gender, and a high mortality rate during pregnancy. Although, her contribution in the maintenance of family was greater than men, her care was much less. Such a situation led to organised exploitation of women in rural Rajasthan. The historicity of exploitation, and its continuity, made it appear normal, leading to further neglect.

Developmental schemes like ICDS envisage specialised care for pregnant women, and lactating mothers. Through this programme, adequate provisions for medical examination during the course of pregnancies, pre and post-natal services, education about child rearing, and family planning have been made. The health programme also includes nutritional support. The focus on pre and post-natal services in this programme is the result of large number of deaths during pregnancy, and efforts to focus on health under stresses and strains have been made. The traditional availibility of the *Dai* had severe health hazards. The *Dai* was concerned only with normal delivery and was responsible for doing the *unclean work*. She, however, did not possess knowledge suitable for undertaking this task in a scientific manner. She was assigned her role on the basis of her practical experience of supervising deliveries in rural society. All such relationships were seen as part of tradition in the social system and were not established on the competence of the concerned individual.

In the ICDS programme, the task of health education is performed by people trained in rural setting. The programmes related to children focus on immunisation, nutrition, and education. The initial care in the psychological, physical and social development of children is a long term investment which can eliminate problems likely to arise in a society in the future. Due to unhygienic conditions, several common diseases may arise, as also from a deficiency of vitamins, or parasitic infection. Due to poverty, the nutrition available is extremely poor. Thus, the developmental programme envisages supplementation of nutrition which would be helpful in the physical growth of the children. The children and mother are given lessons regarding cleanliness and other practice for the maintenance of proper health and physical growth. This scheme also envisages elementary teaching by the play-way method so that children could be prepared for school.

The literacy rate in rural India, especially in Rajasthan, is low compared to the national average. It is, therefore, necessary that children be prepared for later schooling. The method develops self interest among the young children who then do not resist going to school later on. Quite often, the development planning and process are criticised for being blind to the reality at the local level. This programme envisages that the nature of nutrition, as well as the personnel are compatible with the local culture. It is often difficult to establish and maintain adequate rapport with local people by outsiders; they are seen with suspicion. Thus, any development programme can be successful only when it takes into account the socio-cultural reality at the level of formation of plan and also at the level of its implementation. Ultimately, the implementation and acceptance of the programme is a definite need of the programme itself.

It has been realized that bureaucracy lays important but misplaced emphasis on 'targets,' and tends to neglect the qualitative aspect of the programme. It is the qualitative aspect which is an important element in the process of development. The process of development, although specific in terms of the area which is chosen, has several consequences which go beyond those expected in plans. There are

unintended consequences which could follow, and which could be either positive or negative. The functionaries at the *Anganwadi* are recruited on the basis of certain formal requirements and specified procedures. The gap between the formal role and the actual process will determine the results of the programme. It also necessitates cooperation of Non-Governmental Organisations (NGOs), who take up developmental programmes in the rural society. The NGOs, ideally, are required to work with a sense of dedication, sacrifice, and concern. People in such organisations are involved through self motivation, and do not have mercenary objectives. It is because of these characteristics of NGOs that these are being supported by charitable trusts as well as the government.

The process of development, thus, raises several questions about its paradigm, co-ordination, implementation, significance, and cost. Quite often it is asked whether development can at all be planned ? It is true that due to planned developmental programmes, changes have been generated during the last few decades. The meaning of development has been blurred, as this term is used by many people in different context. For the academic, the cognitive meaning of development has pluralistic-abstract connotation. For bureaucrats, the meaning of the term is related to planned changes in specific areas, initiated by government. For the rural people, development often assumes certain benefits which occur to them without any payment. It is thus interesting to find that the concept of development has multi-disciplinary connotation. Economics, psychology and sociology have used this concept differently in their intellectual works. The focus changes, depending upon national priorities and populistic political motivation. Economic growth was concerned with increase in production. But, as it was felt that economic growth does not necessarily lead to social and cultural development, there has been paradigm shift in the concept of development.

The particular programme of ICDS is being viewed within the macro-level context conceptually and theoretically; and in the micro level rural context, empirically. The purpose is to raise issues through a study at the local segmental level.

The focus of the ICDS programme is on women and children. Interestingly, the abbreviation ICDS does not indicate the place of women in the programme. This neglect in format of abbreviation reflects the unconscious or conscious thought formation of the male, wherein the female is visibly and, invisibly, ignored.

IV

The status of women in rural society has been institutionally so constructed that she suffers from several socio-cultural deprivations. The consequences of this structural deprivation have led to the following situations :

(*a*) Deprivation of power of decision making within the family.

(*b*) Closure of opportunity in the public arena.

(*c*) Deprivation of the opportunity for education.

(*d*) Deprivation in normalcy of health and nutrition.

(*e*) Structural exploitation in economic, cultural, social, and sexual spheres.

(*f*) Discriminatory and separate socialization.

(*g*) Association of ritual impurity and cyclical impurity with the body.

(*h*) Institutionalized practices and customs, viz., female infanticide, widowhood, prostitution, *Devadasi*, *Purdah*, dowry, *Sati*, which lower status.

(*i*) Normatively distinct expectations like virginity, faithfulness, motherhood, glorified for unquestioned acceptance.

(*j*) Stigma attached to certain categories of women.

So far the deprivation of power and decision making are concerned, it can be seen at two levels:

(*i*) familial personal context, and the

(*ii*) public, general context.

In the patriarchal system, the power for decision making is concentrated amongst the men. The continuity of the family name, and inheritance, is male oriented, and social customs deprive the women of the possibility to participate in public activities. The custom of *Purdah* deprives women of the opportunity for education and employment. Similarly, the custom of dowry, widowhood, non-inheritance make her dependent on the males within the family, either as daughter, or a wife.

Literacy among women in the state of Rajasthan is much below the rate of literacy of the country. The literacy rate is especially low in the case of backward category of women, such as those who belong to SC/ST. Even in urban areas, the access to education is easy for middle and upper middle classes of women; not to women who belong to lower categories. Educational deprivation has social and personal consequences. The personality of the uneducated person is more myopic and narrow as the person is unable to read and write and therefore is not in a position to grasp the various dimensions of contemporary societies. The prevalence of several social evils is due to illiteracy and ignorance amongst these people. Awareness of rights, legal knowledge, possibility of several openings, information about governmental programmes/schemes, become meaningless unless a person is able to comprehend them, and has the necessary reading and writing ability to undertake necessary completion of formalities. Thus, a woman suffers from the psychological trauma in which she perceives herself as small and inferior, compared to the educated male and educated female of other social categories.

Along with this, focus is also on creating awareness about need for vaccination of young children. Any scheme of the government is to be seen not only in the context of goals which are always laudable, but also the means and ways through which they are implemented. In the initial stage of planning of focus was on the implementation of these schemes, naturally through the government officials, who were quite often insensitive to the programme and policies so far as their implementation was concerned. Bureaucratization of programmes has led to ineffective implementation of these. Certainly, it was proposed that the schemes should be implemented with the involvement of the local population, so that the felt needs of the people could be taken into account and the people also feel involved. Individuals who are particularly responsible for the implementation of the scheme have to be recruited locally, and systematically trained.

The present study provides a micro level analysis of a single village related to a particular governmental programme which is oriented to women and children.

The ICDS has been formulated with specific objectives in view. This is the health and nutrition programme, geared to providing low cost health services to

(*a*) infants,

(*b*) child below six years of age,

(*c*) lactating mothers, and

(*d*) pregnant women.

Thus, there are two major aspects of the programme. One deals with the general health of women and children, and the other with the nutritional and educational aspect. The programme conceives regular medical check-ups of the women during pregnancy period; administration of two types of tetanus toxoid; pre-natal and post-natal services; family planning and medical services at the time of child birth; precautions to be taken during child birth, services of medical persons and instructions about breast feeding; family planning services; education regarding contraceptives, their distribution; and sterilization. So far as the health of children is concerned, immunization is one of the major areas of this programme. Besides the vaccination against T.B., D.P.T. vaccines are also required to be administered. Similarly, the innoculation against cholera, if needed, in the area which forms part of the programme. Besides immunization, treatment of common diseases like diarrhoea, dysentry, round worm, anemia, vitamin deficiency, are also included in the programme. So far nutrition and educational aspects are concerned, children and mothers are provided supplementary nutrition. Mothers and children are given lessons— oral and demonstrative— related to cleanliness of the area, as well as of the body. Similarly, children are also provided with pre-school education by play way method, so that they take interest in education when they are admitted to schools.

The programme also deals with the needs of the rural population around the Primary Health Centres, which are headed by CAS, and supported by ANMs and Health Workers. These functionaries work in close collaboration with the Anganwadi workers, who are normally employed by the Social Welfare Department. The Anganwadi provides a locale for the ANMs and Health Workers to meet the beneficiaries. The women and children are medically examined, and regular treatment is provided. Mothers and children are also referred to hospitals for special treatment.

Literacy is another area in which the government provides basic facilities in a planned manner. The objectives of the scheme for adult women is to enable them to participate in the developmental efforts at different levels of comprehension and implementation.

(*a*) To prepare and inculcate awareness amongst women regarding scientific method of health and hygiene, including population control.

(*b*) To impart need based training for health management and child care.

(*c*) To bring about attitudinal change amongst women. Non Formal Education is important for the women between the ages 15 to 45. However, greater attention is being paid to women between 15 and 35 years of age.

The focus is on health, nutrition, education, and related dimensions. It is important to understand the process, implications, structure, and impact of this programme. This has been inquired into in a village, Jaisinghpura, in Rajasthan, in the present study.

V

This is a study of a single multi-caste village and focuses on Integrated Child Development Services, a programme related to women and children. The pre-natal and post-natal aspects of to women and pre-school children in the context of health, immunisation and nutrition are major dimensions of this programme.

The study has been conducted through fieldwork spread over a period of two to three years, from 1987-1988 to 1990. Observation, interview, life-history, and schedules, are some of the techniques :

1. The Village Profile Schedule.
2. The Anganwadi Worker Schedule.
3. The CDPO Schedule.
4. The Household Schedule.
5. Guide Points of Life History.

Secondary data has been collected through government records, census reports, and other official documents. Primary data has been collected through key, and relevant, individuals. Observation has been carried out on the various aspects of village life; both general, and specific to the programme under study.

The study focuses on:

1. critique of development at conceptual level,
2. description of the setting,
3. delineation of formal structure in the programme,
4. identification of actual structure at the implementation level,
5. profiles of key functionaries in the programme,
6. construction of the format, place, material and milieu of the sub-setting, *i.e.*, the Anganwadi,
7. examination of programme in the context of beneficiaries,
8. evaluation of the programme in its core and subsidiary issues,
9. life history construct of selected women, and
10. formulation of proposition and tentative theoretico-conceptual paradigm.

The study, thus, aims at comprehension of macro-level developmental issues in the context of micro-level analysis of a segmental programme in a rural setting.

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3

Growth and Development of Children

The term growth and development refers to the process by which the fertilised ovum becomes an adult person. Growth implies principally changes in size of the body as a whole or of its individual parts; development embraces other aspects of differentiation of form, including those driven by genetic endowment, but also involves changes of function, including those that are shaped mainly by interactions with the environment, whether these produce structural, emotional, or social changes.

Manifestations of physical growth and development range from those at the molecular level, such as the activation of enzymes in the course of differentiation, to the complex interplay of metabolic and physical changes associated with puberty and adolescence.

Neurodevelopmental processes, such as the acquisition of basic gross and fine motor skills, depend to a great extent on maturation of neural structures, but they may be profoundly modified by the environment and by experience.

Cognitive growth and development depends on both genetic and environmental factors. In early infancy this process may be difficult to differentiate from neurologic and behavioural maturation. In later infancy and childhood, cognitive and intellectual functions are increasingly measured by communicative skills and by the ability to handle abstract and symbolic material.

The psychosocial development of the child integrates all of the foregoing in a process that incorporates genetic constitution, cognition, and experience into the continuing and ultimate definition of the individual as a unique person and personality.

Genetic factors may set limits to biologic potential, but these are intimately interwoven with the environment. Physical trauma may be prenatal or postnatal, nutritional, chemical, residual from infection, or immunologic. Nutritional factors may reflect primarily socioeconomic realities. Social and emotional factors affecting growth potential include the sex of the child, the position of the child in the family, the quality of interaction of the infant of child with siblings, parents and others, the personal concerns and needs of the parents, and the child rearing patterns of the parents and of the community. Cultural considerations may either limit or expand the range of behaviour of children by establishing conventional expectations and may alter the schedule for acquisition of skills, such as sitting or walking, which

were once regarded as depending almost entirely on maturation. Politics and culture are closely related, in as much as the political life of any community provides the arena in which public priorities are set, including those that may have profound effects on children.

The experience of each child is unique, and the patterns of development may be profoundly different for individual children within the broad limits that designate *normality.* Patterns of physical growth and development, for example have such variability that they can often be expressed only in statistical terms.

The period between the 12th and 40th week of gestation, the fetal period, is marked by rapid growth and elaboration of function. Not until the 24th-26th week, however, is the fetus generally viable.

Physical Development

The 1st week of embryonic life is germinal; its chief feature is cellular division. During the 2nd week, the cell mass differentiates into two layers (ectoderm and endoderm); during the 3rd week, mesoderm is added., During the 4th week, the growing organism elaborates the somites and undergoes rapid differentiation between the 4th and 8th week into an essentially human form. At 8 week of age, the fetus weighs about 1 g and is about 2.5 cm in length; at 12 week it weighs about 14 g and is about 7.5 cm long, and at 16 week it is about 100 g and 17 cm long. By the end of the 2nd trimester (28 week), the fetus weighs about 1,000 g and is about 35 cm (14 inch) in length. During the 3rd trimester the increase in size of the fetus involves primarily subcutaneous tissue and muscle mass.

Respiratory movements of the fetus occur as early as the 18th week of gestation, but the level of development of alveolar structures usually does not permit survival until the 24th-26th week. The development of pulmonary surfactant is underway by 20 week of gestation but may not be adequate until late in the 3rd trimester, the tidal flow of amniotic fluid into and out of the developing lung may contribute to pulmonary arborization. Late in pregnancy, when amniotic fluid contains more cells and may contain meconium and other debris, aspiration may deposit these materials into the alveoli, leading to respiratory difficulties following delivery.

The hemoglobin of the fetus is predominantly fetal in type (Hgb F). At a given oxygen tension, Hgb F carries more oxygen than adult hemoglobin (Hgb A). Hgb A is produced in late fetal life and represents approximately 30 per cent of the hemoglobin in the mature newborn in infant.

Bile begins to be formed by about 12 week of gestation and digestive enzyms soon thereafter. Meconium, the distinctive intestinal content of the fetus, is present by 16 week; it consists of desquamated intestinal cells and fluids, and of squamous cells and lanugo hair from amniotic fluid swallowed by the fetus.

The fetus makes swallowing movements as early as the 14th week of gestation; at 17 week the upper lip may protrude on stimulation in the oral area, and by the 20th week both lips protrude. At 22 week the lips are pursed on stimulation, and by 26-28 week the fetus may actively suck in attempting to gain nourishment.

The placenta is the chief route of metabolic exchange between the mother and the fetus. Its most urgent function is to provide for gas exchange; for this, adequate perfusion is needed on both the fetal

and the material side. The placenta elaborates hormones and enzymes that participate in the regulation of pregnancy, and it effects the selective transfer of nutrients and metabolites between the mother and the infant. Maternal hormones and drugs may also be transferred to the infant. Placental permeability is selective even for such closely related substances as the antibodies against viruses and those against bacteria; the former (*e.g.*, immunoglobulin G [igG]) are more readily transmitted than the latter (*e.g.*, igM). Much of the transfer of calcium, iron, and igG to the infant occurs in the last trimester, with the result that the infant born prematurely may have a greater need than the full term infant for calcium and iron, may be more susceptible to infection.

Neurodevelopment

Neurologic activity in the fetus is first manifest by about 8 week of gestation, when isolated muscular contractions may be seen in response to local stimulation. By 9 week, contralateral flexion may be followed by ipsilateral flexion, and some spontaneous movements occur. By 9 week of gestation, the palms and soles have become reflexogenic; by 13-14 wk, graceful flowing movements may be produced by stimulation of all areas except the back, the back of the head, and the vertex. At this time, the movements of the fetus may first be felt by the mother. The grasp reflex is evident by 17 week and is generally well developed by 27 week. Weak phonation may occur in the fetus delivered at 22 week. By 25 week, the earliest signs of the Moro response can be elicited. In late pregnancy the fetus is capable of habituation to certain sensory stimuli; for example, fetal movement and acceleration of the fetal pulse in response to noise transmitted through the mother's abdomen are blunted on repetition of the noise (see orienting response, later).

Fetuses differ in levels of activity, and there is evidence that fetal activity may respond to maternal emotions, possibly as a result of placental transfer of epinephrine or other substances. Little is known about how the activity of newborn infants or the quality of the infants demands during the first few weeks of life may reflect aspects of gestation that are dependent on maternal emotional states. The comfort that some newborn infants receive from rhythmic motion or rhythmic sound may stem from similar sensations imparted by maternal motion, breathing or heart sounds.

Problems of Embryonic and Fetal Life

Mortality during the embryonic period is probably higher than at any other time of life. Causes include abnormalities of genes and chromosomes and alterations in maternal health. These may be interrelated; advanced maternal age, for example, disposes to certain chromosomal abnormalities. Maternal infection or the administration of certain drugs to the mother during the 1st trimester may alter the differentiation of the fetus and may result in congenital anomalies. Intrauterine environmental factors responsible for defects in differentiation exert their effects principally within the 1st trimester.

Morbidity during the fetal period may result from a variety of intrauterine factors. These include interference with oxygenation secondary to disturbances of the placenta or umbilical cord; infections of bacterial, viral, or protozoan origin; injury by radiation, trauma, or noxious chemicals; immunologic disorders due to maternal immunisation and transfer of isoantibodies; and maternal nutritional disturbances.

The effects of intrauterine malnutrition on cerebral structure or function in later life are not fully understood. The rate of increase in the number of neurons is high during gestation, and their number probably continues to increase at a decreasing rate until about 18 mo of postnatal age. In this postnatal period there is also an increase in the number and complexity of dendritic connections, in the number of neuroglial cells, in the size of neurons and glial cells, and in myelinization. The effects on the central nervous system of malnutrition that occurs after this time can be much more readily reversed than those that result from undernutrition during periods of rapid cellular proliferation.

4

Stages and Principles of Child Development

Growth and Development

Pre-school education aims at proper growth and development of Children at the right time in the right manner. If we intend to see a child fully developed we have to look to his/her growth and development from very early childhood. Even it is suggested to take care of the child from the very day of conception. In this case, we can take care of the fetus indirectly by taking care of the mother. So long as the fetus is inside the mother's womb it receives food materials directly from the nutrients of the mother's blood stream. These nutrients are obtained from her food through the process of digestion. They are absorbed and carried to the placenta by her blood stream which then pass to the fetal circulation. Hence, it is very very essential to keep the mother in proper diet by providing her with essential nutritious food. This would be perhaps the only right step to look to the development of the child (fetus) during the prenatal period.

These two terms "growth" and "development" are sometimes confusing. Many people use these two terms interchangeably. But in reality these two terms "growth" and "development" mean different aspects. Growth, in the strict sense, refers to measurable quantities such as weight and height whereas development refers to the process of functional maturation, that is, maturation of the roles played by the body's systems, in its purest sense. Growth does not restrict its reference only to outward physical growth but that of internal organs like brain. Hence it is both physical and mental. But development by contrast, refers to "qualitative changes". As Anderson has emphasised "Nor is development merely a matter of adding inches to stature or ability to ability, instead, it is a complex process of integrating many structures and functions." In the views of Hurlock "It may be defined as a progressive series of orderly coherent changes. "Progressive" signifies that the changes are directional, that they lead forward rather than backward. "Orderly" and "Coherent" suggest that there is a definite relationship between a given stage and the stages which precede or follow it." It is the emerging and broadening of the child's ability to function on a higher level, whether in the psychomotor, cognitive or affective domains of human behaviour. It is impossible to separate these three areas of human behaviour from one another due to unity of man. It is rather inappropriate to try to perpetuate development in one domain separately. The more and more information the child receives from his own body, his perception, his physical

motor activities, he understands the world better. What ever the child does from his birth to pre-school stage, does lay foundation not only for later physical motor skills, but also for cognitive progresses and social-emotional and aesthetic development as well. Therefore, interrelatedness among all the aspects of growth and development should always be recognised. We need to know the children with keener insight and have a clear understanding of how they develop and learn in these early years so that we will have a point of departure for planning, administering and sypervising a solid base on which to make our appropriate decisions.

Physical Development

Generally different aspects of development proceed from a physical motor base. Whether it is physical or mental, development is never a uniform process. But some of the sequences are continuous. It is most rapid during the pre-natal period when the fetus grows from a micro-scopically small germ cell to an infant. As per information collected by Hurlock the weight of the fetus during these nine months grows eleven million times.

Physical development is continuous during the childhood. This can be very well marked if a five years old baby is compared with a new born infant. The growth and development from infancy to the age six, during the Pre-school age is remarkably rapid. Afterwards it slows down.

Some of the developmental sequences are also discontinuous. For example with sensory experiences like seeing and touching children may explore different textures of materials quite randomly. They do this before being ready to sort out and classify the materials. Similarly they need sort out and compare thought before being able to deal with complex ideas. In general, a child first learns the physical motor skills being involved in simple every day action. It is almost agreed that the children learn the physical motor skills in much the same way they learn about other tasks. Hence as in case of mental or intellectual or cognitive development, there need be essential elements of readiness, motivation, attention and some kind of feed back to enhance physical and psycho-motor development.

From the age two to five rapid advance in child's ability to control and use the various muscles involved in body movement is experienced. Remarkable increase in the strength, speed and accuracy in motor ability is marked.

At this age the child walks with a characteristic rhythemic stride which is clearly distinguished from the toddling walk of younger children with multiplication of motor skills. At this age the child can skip, hop and very well ride a tricycle and with the advancing age they do better and better. The children at this period become more active and always like to be engaged in certain activities. Hence it is very important to encourage movement and provide a variety of activities to the children specially at this pre-school age.

Psycho-motor development refers to an individual's learning to move with control and efficiency, this often refering to simple motor development can be devided into two important aspects namely, "movement abilities" and "Physical abilities". Early childhood Educators and planners have become more aware of the many important contributions of "movement" to the cognitive and effective development of the children. These movement abilities can be developed and refined to a point that children are capable of dealing with considerable ease and efficiency within, their environment. Physical

ability refers to the ever increasing ability of the young child to function and operate within the environment with regard to his or her level of physical fitness and motor ability. The physical abilities of the child are influenced by a number of factors related to his or her health and performances which in turn will influence his movement abilities. Hence, it is essential to say that these two aspects are closely related.

Movement behaviour may be further classified. On the whole, activities like developing patterns of movement with children which allow young children to gain and maintain a point of origin for the explorations being made through space, fundamental locomotor abilities which involve projection of the body into external space (such as running, jumping and skipping, etc.) by exploring the world around them, and fundamental manipulative abilities which involve force to objects like striking pushing, pulling and throwing etc. may come under the category of "movement activities." These activities are experienced through out human life starting from infancy to adulthood. Children function at different phases of motor development depending upon their hereditary make-up and experimental background.

The physical development aspects of the psycho-motor domain may be further classified to physical fitness component and motor fitness component. Muscular endurance and strength, respiratory and circulatory endurances may be brought under physical fitness. This type of fitness is the ability to perform one's daily work without fatigue. Motor fitness is also regarded by some as a part of physical fitness which refers to the abilities for speed, balance, co-ordination and power.

The rates growth with individual children are not the same. They grow and develop at their own rate. These rates vary due to various reasons which are discussed later. Hence at Pre-schools stage we get children with different ability level. Even though theories very little to be done about the maturational component of the process, teachers and care takers can influence the experience component very well. All movements occur in space and involve an element of time and the development of these structures in considered basic to efficient functioning in variety of other areas. Hence while planning physical and motor activities in Pre-school Education it is essential to enhance the child's knowledge of his/her spatial world by means of getting his/her involved in movement activities designed to his/her body awarness, directional awareness and spatial awareness.

If we look to the condition of Physical Education in our formal schools now we can very well mark its place in the curriculum. Even though it is very essential to contribute towards proper growth and development of the child it still remains as a neglected subject. Children who are supported by physical education are usually those who are well developed physically and motorically, moving forward to be future promising school athletes, where as most of the students try to avoid this and become poorly developed. It is also very easy to escape physical education classes in the school as it finds least place in school curriculum. In words we give much importance to physical education by saying "a sound mind rests in a sound physique." But in practice, no tangible steps are taken in formal schools to provide adequate opportunity to the children for having proper physical growth and development. Hence teachers of young children should recognise the need of such an education and put emphasis on these activities to enhance both fine and gross motor skills with children to expedite proper growth and development.

It is already discussed that in order to bring proper growth and development in the children we

have to look to this from the very day of conception. As we have the scope to discuss upto pre-school stage (Early childhood stage) the period of the development may be devided broadly into three distinct heads as follows:

1. The Pre-natal period.
2. Infancy and babyhood.
3. Early childhood.

Pre-natal Period

This period extends from the day of conception till the birth of the child. The approximate duration of this period is 270-280 days, the period of Growth of the fetus in mother's womb. Life begins from the very day of conception. At this stage the female reproductive cell, the ovum is fertilised by the male reproductive cell, the spermatozoon. In order to occur conception the ova and spermatozoa are to be quite matured. As the newly born baby generally carries the characteristics of the father and mother which pass through genes of the chromosomes those need to be fully matured to carry maximum traits from the parents.

At the time of union of the parents a large number of spermatozoa from the father pass through the mouth of the uterus of the mother towards the fallopian tube. Those are attracted by the ovum of the mother by a strong hormonal force drawing those into the tube. After the union of only one spermatozoon with the ovum, the structure of the Ovum is so changed that no other sperm is able to enter into it.

Thus, the fertilisation is completed. The new cell is formed with 23 pairs of chromosomes equally from father and mother. As this is purely a chance combination a child may have many traits in common with one or both his parents. There is also chance with a child to resemble his grand parents as his parents have also borrowed different traits from their parents in the same manner. The moment of fertilisation is very important as it determines the person's hereditary endowments, his sex. It may also determine whether he will be a singleton or a twin. But very little is there to help this as it is quite a natural process. Still scientists and doctors are trying their best to have control on this process so as to have child of one's choice.

This Pre-natal period passes generally through three main stages, such as :

1. Period of Ovum or germinal stage.
2. Period of Embrio of embrionic stage.
3. Period of fetus.

This Ovum or germinal stage is applied to egg-like organisation existing in mother's womb and the period is for about two weeks just after conception.

During this period there is every danger of dying down of the Ovum before being implanted in the uterine wall and gets a new source of nourishment. Another danger which is equally fatal is, the lack of proper balance between the mother's pitutory gland and her ovaries. This lack of balance may slow down the preparation of the uterine wall to receive the fertilised ovum as a result the ovum dies down of starvation. There also another type of danger of ovum being implanted to an area where it cannot

get nourishment. Tube pregnancy is an example of this. But we donot have anything to do during this phase.

The embrionic period is from the third week to the end of seventh week. During this period the embriyo grows from the microscopic single cell ovum upto a faint structure of fetus. All important external and internal features start to develop and function along with sex organs in order to distinguish the sex of the embryo. By the end of this period embriyo measures only two inches in length and weighs about two-third of announce.

Third phase namely the period of fetus begins from the ninth week of conception and continues till birth. External and internal features continue to grow and develop following the law of developmental direction and the fetus takes a complete form just before birth by the end of tenth lunar month.

During this period it is very important to take care of the mother. As the fetus receives food materials directly from the mother's blood stream the mother is to be provided with sufficient nutrious food during the prenatal period. Any type of ailment of the mother also affects the growth of the child. Hence care need be taken to keep the mother quite healthy and free of any physical or mental ailment so as to allow the fetus grow without any difficulty and comes out to the earth undisturbed.

Stages of Infancy and Babyhood

This period is the early postnatal period extending from birth to the age of two years. After nine months stay inside the mother's womb the fetus is suddenly thrust into an environment which is not only different but highly variable. Here the fetus is to adjust to the sudden change of temperature and change in mode of feeding, eliminating and getting oxygen. From the moment of birth the child becomes more dependent on others. The moment the umbilical cord is cut, the instant becomes a separate, distinct and independent individual. The period from birth up to the disconnection of the umbilical cord is known as the *Period of Partunate*. This period is very critical for the baby as it has to adjust to a complete new environment. The mortality rate during this period is, therefore, so high.

The period from cutting of umbilical cord upto the falling is know as the *Period of Neonate*. It is for about two weeks. During this period the baby looses weight and tries to adjust to a life which is free from the protection of the intrautrine environment. After this period the baby begins to regain lost birth weight and resume development. During this period the mortality rate is also high. Hence all sorts of care is to be taken to keep the child quite well.

Besides abnormality with fetal babies there is every possibility with a normal baby to be in danger at the time of birth. This is the most emergent period as it involves not only the life of the fetal baby but that of the mother. Many things might happen to the fetus during this period, for example injuries to the brain, nervous system and damage to the brain cells. Hence, we have to take all possible care for a normal birth at least by employing a trained nurse and take all post-natal care. It is also not advisable to give powerful medicines to the expected mothers as such drugs may "retard the adjustment of the infant to postnatal life or cause deviant behaviour," this may also go to the extent of damaging body growth.

The new born baby is quite unstable. Their basal pulse rate ranges from 130 to 150 beats per minutes at birth and then drops down to an average of 117 beats several days after whereas the same for an adult is 70 per minute. The respiration rate during the first week is 35 to 45 breathing movements

compared with 18 at adulthood. Breathing is generally rapid, irregular and abnormal in the new born baby. The body temperature is also higher with them. A new born infant generally weighs between 7 to 8 pounds and his height is around 20.5 inches. As days proceed on, the infant gradually grows and develops in different aspects.

Babyhood continues upto two years. This period is regarded as the true foundation period of human life. During this period growth and development both physical and mental, is quite rapid. The infants gradually become independent in their work during this period. The general pattern of growth and development is almost similar in case of all babies. There may be variations in their weight, height and areas of physical growth and this is mainly due to heredity and nutrition. If proper care is not taken during pre-natal period babies fail to have normal growth in their post-natal period and fall behind other age mates.

Post-natal Care

Feeding

The only most appropriate and highly nutritious food for the new born baby is the mother's breast milk. God is so kind to store the most valuable baby food for the babies of any mammal with the breast of the female. No other food in world can substitute the mother's breast milk. Human babies are to be fed with breast milk at least for two years for their proper growth and development. Breast feeding is universal in India. Previonob breast feeding was discouraged. Now there is rather a movement in the world for advocating and advising mothers to have breast feeding. After delivery it may take some house for secretion of milk from the mammary glands and at the first instance a thick yellowish fluid known as colostrum comes out which is easier to digest and gives some protection to the baby against diseases. For first twenty-four hours the baby is usually given boiled water with little sugar or honey or diluted mother's milk. Generally, the sucking instinct is very strong with babies but it may lead to diarrhoea if they are given more milk at the beginning. Looking to the quantity of secretion the baby may be fed with suitable interval. It is also important to wash the breast before and after each sucking to avoid any injection. Breast feeding is not only quite essential for the growth of the infant but also helps the enlarged uterus to contract easily and revert back to its normal position. Psychologically it helps to develop the maternal instinct in mother and gives a profound sense of security to the child. In a developing country like India breast feeding is quite economical than feeding cow milk or any other baby food. But it is also essential to provide the mother with adequate nutritious diet. It is calculated that whatever we spend on baby food for an infant a very less amount will be required to provide the nursing mother with adequate nutritious diet.

As the age advances, the child is to be given with additional diet besides breast milk. Cow milk will be suitable for the supplementary diet. In the beginning this milk is to be given in diluted form along with sugar. If cow milk is not available partially skimmed buffalo milk or fruit juice may be given. While giving supplementary diet some precautions as stated below are to be taken :

1. A very small quantity of food is to begin with and be gradually increased. One food is to be introduced at a time.
2. The baby should not be forced to take food and be allowed to take whatever amount he feels to take.

3. At the beginning diluted or thin and smooth diet should be introduced before giving any solid.
4. The baby food is not to be too hot or too cold and there should not be any spices except little salt in it.
5. There should be proper timing in feeding the baby.
6. All possible care is to be taken to avoid any type of infection at the time of feeding.

Sleep

Sleeping is equally necessary for the baby for proper rest. In the first three months the baby sleeps most of the times and gets up only at the time of feeding or when he is disturbed. As he grows older he sleeps less and less and wakes up more frequently to play. By the end of first year he is gradually accustomed to two naps a day. While putting the baby to sleep in cot or cradle care should be taken to put him to sleep in both the sides alternatively to give proper stape to his head.

Immunisation

When the fetus comes out of the mother's womb to the new world he is exposed to the varied atmosphere with changing climate and full of germs of different diseases. His body is not that much resistant to the prevailing diseases. Hence it is very important to make baby immuned. In India diseases like Diptheria, Polio, Whooping Cough and Tetnus are common with children. Hence Triple antegent for Diptheria, Whooping Cough and Tetanus and Polio Vaccin are to be administered to the baby in suitable interval. He is also to be immunised against cholera. Typhoid and T.B. looking to the local conditions. The whole programme of immunisation is to be planned and carried out as per the advice of a doctor and should be recorded properly.

Significant Developments with A Normal Baby

1. One month old— Eventhough one month old, the child feels quite helpless of all the neonates, the human child is so poorly developed at birth that he is most helpless. But it helps him to develop along lives which would not be possible in case of animals. At this stage the child lies most of the time at his back with his head averted to one side and reacts to outside stimuli with started response.
2. Two months old — At this stage the baby starts recognising his mother but so far as co-ordination and self-movement is concerned it still feels helpless.
3. Three months old — When he is three months old, he recognises sounds and turns his head towards the source of sound. When he finds his mother welcomes with a smile. He tries to move his hands out of fascination.
4. Four months old — Tries to sit with support and holds his head direct. He loves to see familiar faces and smiles at them.
5. Five months old — He turns over and attempts to get at the objects.
6. Six months old — Tries to have some muscular co–ordination, grasps small objects. He uses legs and hands to move forward or backward when lies on abdomen.

7. Seven months old — At this stage the baby sits without any assistance and plays with small toys for a period. Gradually he acquires self-sufficiency.
8. Eight months old — He can pick up small objects with fingers and takes those to his mouth.
9. Nine months old — With support he tries to stand upright and utter 'Ma' 'Ba' 'Da' etc.
10. Ten months old — He creeps on hands and legs and becomes aware and curious about his environment. He uses his fingers and thumb for poking and probing.
11. Eleven months old — He tries to stand alone. At this stage he accepts solid foods and prefers company to being alone. He shows tendency to imitate facial expressions, gestures and sounds.
12. One year old — He becomes able to put one cube on the top of another. Tries to walk with support. He begins to repeat works under stress of repetition.

Teething

Generally teething is marked between sixth and eighth month. At this stage the lower central incisors irrupt preceded by much drooling, biting and restlessness. But the erruption depends on the health, heredity, nutrition before and after birth, race, sex and other factors. Even though girls generally get their first tooth slight earlier by two years, boys go ahead of girls in teething. As a rule lower teeth come out earlier than the upper ones. Some babies suffer fever, cold and diarrhoea at the time of teething. It may be due to sleeplessness during teething. This process of teething continues upto two and half to three years of age approximately at the rate of one month. In all, 20 temperary teeth appear during this period. These teeth are smaller in size, poor in quality and subjects to caries. Afterwards at the age of six or seven these temporary teeth begin to fall and in their places larger and stronger permanent teeth appear until their number is thirty-two. This process goes on normally upto twenty-five years of age.

Growth and Development of Nervous System

Nervous system grows very rapidly during pre-natal period and post-natal period upto four years of age. Specially in the post-natal period the immature cells present at birth are developed. The weight of the brain at birth is one-eighth of the total body weight. Gradually afterwards the body grows at a greater rate than the brain. As a result it becomes one-fortieth at maturity.

Early Childhood

This period is most critical so far as growth and development is concerned and begins after the babyhood. This period is also devided by some into two parts, namely:

1. Toddlerhood, and
2. Pre-school childhood.

Toddlerhood is the period just after babyhood for about a year and half. In this period the child is still a baby but can walk about more confidently. A toddler looks more chubby with short legs and barrel shaped chest. Gradually he walks steadier and curiousity is ever increasing. He tries to climb stairs and is easily attracted by various things. Specially during this period one has to be very careful

to save him from accidents. Eventhough he has strong urge to do things himself, a toddler is rather clumsy in his movement and action.

At this age the child wants to go near to his play-mates and gradually tries to play with them. His dealings appear to be self-centred as he tries to introduce him in group by pocking them or snatching away their toys. He has practically no idea of sharing things or respecting other's property. Sometimes parents misunderstand this type of attitude and force him to share things with others. At this age he likes to play with sand, mud, water, dolls etc. He also listens to simple and short stories and songs and sometimes tries to repeat them within his vocabulary. This provides him with opportunity to speak.

It is easier to give them toilet training at this stage like passing stool and urine at a particular place. Bowel control comes first while bladder control takes a comparatively longer time to be achieved. Particularly at this age the child is curious about everything they see and want to learn more by touching, tasting or playing with it. Sometimes they play with faeces and stool, Parents should be quite patient and should not shout or slap the child, instead give some play materials like sand or mud to play with. They may be acquainted to some hygienic practices but parent should not be toor rigid on this.

Pre-School Childhood

It is rightly remarked by E. Hurlock that "the child's physical development has a marked influence on the quality and quantity of his behaviour." We cannot expect a child to be a good citizen if he is not physically sound and fit. The period of pre-school or early childhood begins after babyhood and continues upto the age of six. This is a very critical period for the child for his growth and development when specially the child starts showing his independent behaviour and working without other's help. Physical growth is important as it meant the progressive development of the various parts of the body and their capacity to function. The rate of physical growth may be determined by some external and internal factors like nutrition, fatigue, rest, exercise, work, heredity, illness and secretion of the ductless and endocrine gland etc. For example, if required balance diet is not given to a child his health will deteriorate. Similarly hardwork, lack of hygienic conditions of living may cause disease and adverse effects on the general health.

It is not always possible to measure all possible components of good health. We can easily measure some of them like height and weight. There are standard tables giving average heights and weights for different age groups of children. It is generally assumed that the child who fails to have the average height and weight of his group lacks in having a satisfactory progress so far physical growth is concerned. Of course, it is not always true and a child due to heredity factor may not be that much fall and as a result being short may weigh less. In such a case even though he is short may have a good health and may be progressing well. But if the height and weight of a child does not increase at the prescribed rate, there is every reason to question the normal growth and development of the child and in order to find out that, we must have to maintain a chart for each child to record his height and weight at suitable intervals. It is better to take measurement of weight in every month and height twice or thrice in each year for babies and young children. Specialists have concluded that if a child does not show any growth in weight in three or more consecutive months it is apt to suspect any defect with him which needs medical treatment.

Studies have revealed that growth of the body is rapid during babyhood, *i.e.*, from birth till age two. Afterwards it is comparatively slow upto the time of puberty. Generally girls are matured earlier and excell boys in weight and height earlier. Then normally from 10th year to the end of 15 years again growth is rapid. Hence generally during Pre-school period the rate of growth is slow. This information is very useful for the parents who sometimes, are disturbed due to the slow physical progress of their children during this age group.

Energy Level

As we have seen that a child grows rapidly during babyhood period it is generally expected that a more amount of energy will be required by him for the purpose. Whatever food is supplied to her, a major portion would be utilised for his rapid growth. Hence he would not be left with much energy to play and work more. He will be easily exhausted and will need more rest in form of sleep. Hence children (babies) during this period generally take more rest. Parents should have to know this and provide the children with sufficient diet and rest to facilitate normal rapid growth.

In the second cycle (phase) which is the childhood period, children show slower rate of growth as discussed earlier. If they are provided with sufficient diet, a less amount of it will be utilised for growth. They will be having more surplus energy to play and work. Hence generally during this period children are more active and spend more time in play and different activities. It is rather painful to them to sit a while for rest. It is painful for these children sitting within four walls for hours together. For this it is recommended to carry on school work for these children through playful activities. The teachers and the parents are to remember that the child at this age is bound to spend more time in playing, running, jumping, shouting and laughing to let of extra energy. If he is not allowed to do this, it is quite natural for him to be unhappy or to get angry.

The children who are not active during this period there is sufficient reason to doubt that they are either having malnutrition or are suffering from any physical ailment.

Characteristics of Growth and Development

During this period a change is marked in body proportion and rapid acceleration is marked in development of arms and legs bringing to those to an audit form. It is also important to note that each child has his own tempo of growth. Some children grow slower during the early years and faster later. Boys and girls grow at different rates. Girls attain their mature weight earlier than boys.

The pre-school period is also marked for rapid development of the brain and heart. By the end of the fifth year, the weight of the heart is four times than the weight at birth where as it was doubled during first-two years. This rate of growth of heart during pre-school years is more rapid than any other period except adolesence. Thy lymph glands are found in regions of neck, under arm and various other parts of the body. Tonsil made out of lymphoid tissue grows larger and larger during this period till it reaches its largest size at five.

Teeth

At the age of two and half years the second molars erupt frequently causing more pain than earlier teeth. The child gets a set of twenty teeth during this period. Hence the pre-school child is to be taught and practise taking care of the teeth by brushing it. It is found out that children are particularly susceptible

to dental decay at about two and half to five years of age. At the age of four and five years nearly one-third of the children have caries. Some parents do not give much importance to this as these temperary teeth are to be replaced by permanent ones in course of time. But the decayed teeth are always painful and may lead to infection of the jaw.

For the promotion of good teeth and healthy mouth Dentists have recommended to take the following steps.

1. Early and frequent care beginning at two years of age through out the life.
2. Avoidance of sweet and starchy foods, specially candy, cake chocolates etc. eaten between meals.
3. Good nutrition especially when teeth begin coming out.
4. Good home care of teeth and gums.

Nutrition

Most of the Indian children have under growth due to malnutrition. Particularly during this pre-school period the protein deficiency is acute. A child of five requires nearly fourteen hundred calories of energy for his normal growth and for this the child is to be provided with required balanced diet. As per the suggestion of Dr. M.V. Radhakrishna Rao a pre-school child needs the following diet for his normal growth.

Food stuffs	*Vegetarian (per day in Ozns)*	*Non-vegetarian (per day in Ozns)*
1. Cereals	4.0	4.0
2. Pulses	1.0	1.0
3. Green leafy vegetables	2.0	2.0
4. Roots and Tubers	1.5	1.5
5. Green non-leafy Vegetables	1.5	1.5
6. Fruits	1.5	1.5
7. Sugar and jaggery	1.5	1.5
8. Oils and fats	0.5	0.5
	(three times a week)	
9. Milk	20.0	16.0
10. Meat and fish	—	1.0
11. Egg	—	One
	(four times a week)	

However, it is advised to prefer locally available food stuffs having equal food value for the purpose. Children are to be encouraged not to have disliking for any food stuff which is really nutritious to them.

Sleep

Sleep or rest is equally essential for having proper growth. Hence it is important to provide the child with good and comfortable bed to ensure sound sleep. The amount of sleep that a child needs varies with age. According to Spock an average two years old child needs twelve hours sleep at night and one or two hours nap at day time. It is slightly less for a five-year child. Children should be helped to go to bed willingly and happily. Quiet music or a lullaby is soothing and conducive to sleep.

Besides sleeps it is important for these children to be regular and punctual in bowel movement. This has also great influnce on proper physical growth.

Motor Development

During this pre-school age there is rapid advance in child's ability to control and use various muscles involved in bodily movement. They show marked ability in strength, speed and accuracy in motor activities.This motor development is also marked in pre-natal period. During the third month of pregnancy the fetal muscles are well enough developed to enable the fetus to move its arms and legs spontaneously. The motor development progresses at a rapit rate during first few weeks of birth. During the first four or five years of life the child gains control over the gross movements. Unless there is physical or mental handicaps to normal motor development a six year old child will be ready to adjust to the demands of school and to participate in the playful activities of peers.

Good motor development has some good effects on health. If motor development is alright it would enable the child to have more exercise, and as good health also depends on exercise, the child having proper motor development will have good health. Secondly, when the child will have regular exercise through work and play he will have mental satisfaction and as a result this will promote a sound mental health. Thirdly, it will enable the child to work independently and that will please himself. Again when the child is fit to work and play he would play with peers. This would give rise to socialisation and the child will be accepted by his friends. This motor development will also give rise to self-confidence and reliance on himself. The children who have better motor development are more adjustment, active, popular, calm, resourceful, co-operative and attentive. This motor development is much more required for pre-school children as they have to properly utilise their surplus energy. Strang has rightly remarked that "the most difficult thing for a pre-school child is being inactive." It is more fatiguing for him to sit still than to trot around all morning . "From this it is learnt how essential motor activities are for a pre-school child both for his physical and mental development. "Motor development of the child should be carefully fortered by providing scope and suitable material for various types for play and games." This would enable him to develop various motor skills by getting himself engaged in various works in form of play.

Intellectual or Mental Development

Like physical development, mental development is also very important. Development in these two are as are interrelated. According to Piaget "Sensory–motor ability is the basis of intelligence". The scope of mental development is quite extensive. It included not only cognitive aspect but that of social, emotional and aesthetic ones.

Cognitive Development

It is an important area of human development which usually refers to the process involving

knowledge about the world, capacity to infer, to think and to understand a phenomenon rightly. This emphasises on the ability to generalise and formulate idea to solve problems. Cognitive change at any period in the life span is affected to certain fextent by perceptual development. As the child grows, much of his development of cognition comes first form the organisation of the perceptual processes. When the child receives numerous stimuli through his sense organs he categorises those stimuli in order to give significance to the information they bring him. This effect is experienced from the birth, where the babies display preferences for certain kinds of stimuli such as sights and sounds of mothers and the respose to those by the children. The young child's perception is bound to the physical aspects of perception and depends on his attitudes, values and cultural meanings with which he interprets perceptual world. That is why some characteristics of the physical world are uniformly more noticeable than others for individuals at a certain age level. The cognitive frame work of a young child is less complex than an older child as a result he fails to recognise the distinctive features among similar objects.

Jean Piaget has classified cognitive development into four different sequential stages.

1. In the sensori motor period, which comes during the first sixteen months, the child copes with new information by assimiltating it into his existing schemata or accommodating his schemata to the information.
2. The preoperational period, lasting from seventeen months to seven years — At this stage the child acquires the skill of using symbols and languages and he learns to separate physical and mental realities and understands mechanical causation.
3. The third is the concrete operational thought period lasting from age seven to eleven years.
4. The fourth stage is the formal operational period which occurs in the early adolescensce. In this period the child is able to make hypothesis, test them and form conclusion on the basis of those data. To Piaget cognitive development is the development of ability to reason logically. Jean Piaget is more concerned with the process of thinking than how much a child knows.

Research data in cognitive done with children provide much support for Piaget's explanation. In its application to education this cognitive theory dictates resposibility for a comprehensive programme with specific criteria for suitable environmental input, and for the nature and quality of the interaction between child and adult.

At pre-school stage the child develops various perceptions such as perceptions of size, shape, colour, time, number, and distance etc. Play is presently considered as an essential learning medium for children. In course of play he learns and acquires capacity to know about objects of different sizes, colours and shapes etc. These capacities develop during pre-school age. While taking active parts in play, children learn many a things to develop their cognitive aspect.

Under this cognitive aspect, to make it more clear, we generally take care with pre-school children to have: (1) language development, (2) development of perception and knowledge of different size, shape, colour, time, number and distances etc., and (3) knowledge, about different phenomena in nature and little arithmatic.

Language

According to Hurlock there are four major tasks involved in the successful mastery of speech. They are : (1) understanding what others say, (2) building a vocabulary, (3) combining words into sentences, and (4) pronunciation. Language is the basic medium of communication and it symbolises ideas to be conveyed to others. Man is distinguished from animals for his capacity to communicate through speech. In order to make a speech to convey the idea the child must know the meaning of the words he uses and must associate with the objects they represent. The words used in a speech must also be rightly pronounced so as to be caught easly by others. This speech enables the child to have social contact and adjustment.

It is seen that by the age of two years a child can combine words to frame short sentences but in many cases they fail to pronounce the words rightly, and finish in incomplete sentences. At earlier age they try to convey, their feeling through only a word or two like 'Ma', 'Pa-pa', Da-Da', 'take' 'milk' etc. Then they try to speech through very short and sometimes in-complete sentences like, 'give milk' 'take me', 'where mother', etc. Upto the age of four compound or complex sentences are rarely used. But the urge with younger children is very much to speak something complex. They try to express their feeling some how, as a result they speak non-sense sentence at times. This is more marked with children of two and three years old.

Studies how that the speech of young children is characterised by a high frequency of the first-person pronoun. This tendency to use 'I' frequently shows the child's great concern about himself. Gradually they learn to use 'we', us, you, he etc. in succeeding years. Pre-school period is the most important period for the development of language and it is essential to provide the children with various opportunities to enable them for better expression. Activities like, story telling, singing songs, in group or in person, going round different places of importance, nature study, dramatisation, free conversation, group play contribute a lot towards development of language of the pre–school children. Sometimes parents are anoyed with these children for the talkative nature and instruct them to keep silence. This is rather harmful to children. In order to increase their stock of vocabulary and enable them to speak correctly and fluently they are to be provided with opportunities to speak freely. It is quite natural with very young children to ask various questions out of curiosity. Even some questions may be meaningless to elders and some may be annoying but still parents have to have patience and respond to those questions for the benefit of the child. Some questions may also be quite difficult to be explained to the children. If a child asks questions concering God, death and sex, it would be rather difficult to give satisfactory answers to the young children. But parents should not stop the child to ask those questions and try to find out an easy and satisfactory answer to each and every question.

"While the pattern of speech development is much the same for all children there are marked variations in the rate of development, the size and quantity of vocabulary, and correctness of pronunication at every age level." There are various factors responsible for the same.

(*a*) *Health:* As has already been discussed period of second year of birth is practically the time for beginning speech. If a child suffers badly during this period and if the suffering is prolonged, the child will be automatically debarred from developing speech and it will be delayed. This would be owing to isolation and limited facilities to communicate with other.

(*b*) *Intelligence:* Various studies have revealed that early speech of young children finds positive co-relation with intelligence. If the child is intelligent he would be able to increase his stock of vocabulary at a faster rate and as a result will be better in speech. Better language development will also contribute towards better school performance as a whole.

(*c*) *Sex:* It is found out that girls indulge more in talking than boys. At this pre-school stage young girls like to talk among themselves while engaged in any indoor work in a group where as boys like more to undertake harder games and exercise where there is less scope for group talking. For this it is experienced that boys lack behind girls in-developing speech as they have less stock of vocabulary and lack of better scope unlike girls to use them.

Mc Carthy has offered an explanation in terms of family relationship. She says that up to babyhood period both boys and girls show equal interest in the speech of the mother. Soon after babyhood girls identify with mothers while boys identify with their fathers. As the father generally remains away from home for a greater period boys fail to come in frequent contact with the fathers and as a result get a limited scope to talk and develop speech.

(*d*) *Socio-economic status:* Generally the members of a family of a better socio-economic status talk a more correct and better language in comparison with that of a labour class family. This has also a great effect on the size of vocabulary and speech making of children. Of cource the difference is not that of much significance during the babyhood period but afterwards it is well-marked and quite significant.

(*e*) *Family relationship:* Wyatt gives a satisfactory explanation to this by saying "the vicissitudes of the mother-child relationship have a determining effect upon the nature and out come of the process of language learning."

A healthy relationship between the child and members of the family facilitate speech development of the child. In families where both the parents remain out for a greater part of the day and give the children little scope to talk to them, the children of those families lack behind in speech development.

(*f*) *Encouragement:* This factor is very important as discussed earlier. There is always an urge with younger children to speak but if they are discouraged to speak, in apprehension of speaking some thing wrong, they could not have better language development. Rather they need to be encouraged to speak out even what ever nonsense they can speak to provide them with a wider scope for language development. This can be done through story telling and other such activities. Children generally love to hear stories. They are also to be encouraged to tell the story after hearing from elders. This would help them definitely to have a better speech.

Bilingualism

Children are to make conversation through their mother tongue as this is the medium of expression in the family. But in some families a second language is necessary to keep public contact. As a result the children have to learn two languages. This bilingualism is a great problem for children. In tribal areas of India this problem is acute. Most of the tribal people speak a different dilect (spoken language)

and some times a particular dilect is confined to a very minor group. Hence they have to learn a second language to communicate with rest of the people of the area. For example, a particular tribe of paralakhemundi area in Orissa speak, 'saura' language but that is confined to a particular group. When they come to the local town for business or for other purpose they have to make conversation through 'Oriya'. Moreover, their children have to know Oriya as they have to prosecute their studies in Oriya medium besides their mother tongue. Hence their children are to be bilinguals.

Most of the psychologists agree that bilingualism has a retarded effect on language development of the child. It is experimentally found out that the bilinguals always lack behind in both the languages in comparison with monolingual children. This bilingualism becomes increasingly detrimental to language development with each year passing. By the time the child is ready for admission into formal school there would be such a great backwardness in language development that the child is not advanced enough in either language to follow school instruction. Hence it is very important to expose the children to one langauage, preferable the mother tongue, only until they are three or four years old and necessary preparation is to be made during pre-school period if at all the child is to be exposed to a second language in the formal school.

Understanding, Thinking and Reasoning

When the child is born he finds before him a complete new world with a changed atmosphere. As per James, this world appears to him as a "big, blooming buzzing confusion". He finds every thing new and at first fails to understand the phenomena taking place before his eyes. This becomes uncomfortabel to him as a result he starts crying. But as time passes he becomes able to understand gradually but slowly. This process goes on along with the development of the child's brain, nervous system and sense organs. The rate of understanding is parellel with that of mental growth and exposures of the child to different phenomena. Maturation makes the child ready for understanding. For survival every living being has to adjust to environment and this adjustment is possible when they understand the situation. This is also ture in case of a human child. He has to understand his environment, the people around him and himself too. Before reacting to any situation he is also required to know about his limitations, both physical and mental. This can gradually be learnt by the children through association with elders and exposures to nature. Better understanding will help to have better development. Even when children play together in a group they have to understand many things otherwise they cannot acquire sufficient skill to even play successfully.

Understanding paves the way for thinking and reasoning. Even though this is a complex process, many psychologists believe that reasoning being looked upon as the understanding of cause and effect relationship, young infants can acquire it. This has also been experimentally found out by many psychologists, like Gesell, Reasoning also includes ability to generalise and make deduction. Of course, this may not be experienced with very young children but this is quite expected with pre-school children. While playing, they can very well be tested on this aspect. In a nursery school, therefore, there should be ample opportunity to develop this aspect through problem solving plays and games.

Problem solving or reasoning capacity of young children can be nurtured by experiencing success. Children are to be provided with puzzles for experiencing the joy of success. They should be allowed to work independently and take their own time to find out the solution so as to enable them to reason

out something of their own. There should not be any spoon feeding at it debars the child to acquire reasoning capacity. It is not that parents and teachers would not come to his assistance. They can help the child develop reasoning by directing his attention to the crucial source of his difficulty. This would help the child to save time and choose the proper approach.

Exposure to nature and study of environment would help the children to have wider understanding and better reasoning capacity. This would also help him to grow his knowledge. Hence there should be ample opportunity in pre-school centres to take children round, show different places and enable them to come across different birds and animals and plants to enhance their knowledge. This would also help them to acquire skill in having little arithmetical knowledge like counting, adding, substracting simple numbers and quantities.

Social and Emotional Development

During infancy the child is self-centred. As he grows he has to face the realities of the society in which he is brought up. In every society there is a norm of behaviour for its members and they have to obey it in order to be called social beings. Their dealings and way of life are to be accepted by the society, otherwise there may not be peaceful co-existence among members. According to Hurlock there are three processes involving socialisation. Those are: (1) proper performance behaviour, (2) the playing approved social roles, and (3) development of social attitudes.

1. *Proper performance behaviour:* It means that the child will behave in the manner approved by the society. Every society or the social group has a norm of behaviour. The standard is prefixed as per the need of the social group. The child has to go along the line for his own benefit and for the benefit of other members of the society.
2. *Playing approved social roles:* In a society the standard of behaviour may vary from age group to age group. For example, the prescribed behaviour for the father may not be same for the son and may also be different for the grand father. Even though this norm appears sometimes unpleasant to some individual it is desirable for peaceful co-existence.
3. *Development of social attitudes:* Freeman has defined social attitudes as that of becoming "imbued with a sense of oneness, inter communication and co-operation". Once a person develops social attitudes he will appreciate social customs and will be involved in social activities of his own, as a result he will be a wanted person in the society.

The child is neither social nor anti-social when he is born but he will definitely follow the behaviour of his elders. Hence the elders have to set before him a standard to get him along the proper line. There should be learning experiences for him as expected by the society and he is to be motivated and guided to behave in that line. Moreover, the experience as per the guidelines need be ample and favourable to him so that he develops such attitudes for socialisation.

This process of socialisation takes longer period. The improvement with the child in this regard may not be uniform. Sometimes very little progress is also marked and sometimes there may be retardation too. But parents and teachers have to have patience and guide and motivate the child from time to time. A child is not born 'introvert' or 'extrovert' but he is rather made like that in course of socialisation.

Family

Family is the first place for the child to develop socially. All members of the family contribute towards this. If global character of the home is favourable, there are changes for developing favourable social attitudes with the child. On the other hand, if the home atmosphere is with constant tension and friction, this will act as an unfavourable atmosphere to the child and the attitudes developed with child will be greatly influenced by this. This will also have a greater after effect in the life of the child. Hence, the members of the family are to be very careful about this and try to set a better example before the child for better social growth. There are a number of factors which influence the social growth of the child while in the family. Those are —

1. The socio-economic status of the family.
2. Type of relationship among parents, among the siblings, among other members and among outsiders.
3. Position of the child in the family.
4. Treatment that he receives in the family.
5. Methods adopted for child rearing.
6. The family background of his playmates.
7. Discipline in the family.

Socio-economic Status of the Family

As family is the first place to start socialisation, its back ground and status influence the social development with children a lot. Children having a better social and economic family status will definitely show a more healthy physical and psychological development contributing towards a better social and emotional growth.

Type of Relationships

Strong states, of all the influences on child development human relationships are the most significant. There are a number of factors influencing family relationships such as parental attitudes, their emotional make up, any conflict or tension between them child's sex and position, economic status, presence of relatives and servants and so on. The behaviour and attitude of the parents and other elders influence the child's development a lot. The child may not fully understand it but can sense the emotional climate. The relationship with the mother is of central importance. It is crucial particularly in babyhood as the child is entirely dependant on the mother for his happiness and emotional security. During pre-school period the child tends to be drawn emotionally towards the parent of the opposite sex and in a way that is erotically tinged. But for the boy the presence of the father is essential during the babyhood and pre–school period so as to enable him to imitate the masculine foil. Similarly a girl needs her mother for her growth during this period. She also needs the father, of course friendly, to get his approval for gaining confidence in herself.

Most of the parents love their children but it has no factual basis. The extent of love may be different from parent to parent. Even some of the parents dislike their children due to some reason or

other. There may be three main points on this gamut to be distinguished. Those are : (*a*) Acceptance, (*b*) Rejection, and (*c*) Over protection.

(*a*) *Acceptance:* This involves genuine love of the parents for the children. They take interest in their development not as their duty but as "the deeper reality of their own inner selves". They accept their children for "what they are, rather than for their good manners, scholastic achievement and good looks", we may very well expect good citizens from such families where children are wanted and accepted.

(*b*) *Rejection:* In some of the families some children are treated as unwanted children. This may be due to various reasons. One reason may be the more of children who cause a great financial problem for the parents. Sometimes parents go on giving birth to more children expecting a male child or a female one. Hence the female children who are born while parents expect a male one may become unwanted and they may be rejected by parents to get proper love and affection. Sometimes if the parents do have a happy married life may ignore children. If the father is not happy with the mother due to some reason or other he may also be disinterested with her chileren and *vice versa.*

This act of rejection may be expressed in various ways. It may take the form of open hostility towards the child or the children or parents may show lack of interest and concern for them. In some parents, the feeling of rejection or hatred may rest in unconscious state and for this they may hesitate to apply even the mildest discipline with the fear of losing control over themselves and do harm to the child.

(*c*) *Over protection:* This over protection is experienced when the parents have only one child or only one male child among a number of female ones. It is maximum when only one child survives after the immature death of a number of children or parents get a child after long anticipation during old age. It may be also due to some condition in the child or some several illness that thatens the life of the child. When there is over protection from parents side they allow full liberty to the child and expect perfection with their children.When children are given so much independence they misutilise this and become spoiled. We cannot blame parents for this over protecting attitudes as this is built up unconsciously in their minds.

Position of the Child in the Family

This is a very siganificant factor in humanlife. When more than one child are born to some parents, there may be the influence of order of birth on the personality development of different children. The first child generally occupies a position in the family with makes his personality adjustment difficult. He likely suffers from the inexperience of the parents. Many of those children become selfish and later on spoiled. In some families, the first children become more favourite to parents and in some families they become substitute parents to younger siblings and take responsibility fairly earlier. Many of the first born chilren are over protected. When the second child borns the parents do not show that much of anxiety and emotional tension as they are now experienced in child care after the birth of the first child. Hence second child and others are not that much over protected and are better adjusted, witty

and fun-loving than the first child. They also face some difficulty due to "bossing over" of the first one. This may give rise developing an "inferiority ambition" with them.

When the third child is born, the middle one faces a different situation in adjustment as he has to give up his place as the youngest one. He may feel neglected or over looked as his security is undermined from above and below. In order to compensate, he may develop greater social skill, and try to please the members of the family in order to draw their attention to him. He may also try to seek satisfaction from social contacts with people outside the family.

The youngest child gets a better position in the family. He is not only loved by his parents but by his elder brothers and sisters. Due to this some of the youngest children become babyist and irresponsible. In an unfriendly household he is likely to be bossed and frustrated by everyone above him. Some of these children getting love from others, may develop an affectionate attitude towards the world and may be in a position to be liked by others. However, irrespective of the position of the child, it depends more on the parents as regards their attitude, experience in child care and their socio-economic conditions as to how they would bring up a child.

Treatment He Receives in the Family

It is rightly said that a child carries his home in his pocket. What ever treatment he gets in his home is generally reflected in his dealings. 'A child who is rejected by parents, may carry the resulting attitude of martyrdom out side the home and even into adult life,' remarked Hurlock. It has already been discussed in previous chapter that how children show reaction and grow accordingly as per the lover and affection they get in the family which is influenced by their position among the siblings. On the whole the character, conduct and personality as a whole of the child is greatly influenced by the treatment he gets in his family and outside too.

Methods Adopted for Child Rearing

This is a most important factor and greatly influences the growth and development of the child. In India, when parents are inexperienced in child rearing, grandparents help a lot in this regard. This is a great advantage in joint families. In families where parents take a democratic attitude in child rearing, the child of those families become more active and socially outgoing due to high level interaction with parents. Generally children who are brought up under authoritarian-child-rearing-methods become quite, non-resistant, unagressive and well-behaved. They cease to show more curiosity and originality due to parental pressure. Children from democratic homes usually make the best social adjustments.

Family Background of Playmates

Particularly during pre-school years and after, children spend more of their times with their friends of the locality or of the school. There is ample opportunity for their interaction. Even some children change their attitude and behaviour being influenced by others. Hence it is very important for the child to get better playmates. If the relationships of a child with his pears outside the home are favourable he will enjoy social contacts. If he gets older playmates he will develop more mature patterns of behaviour but here there is chance of being bossed over. When the child makes younger playmates he may take leadership and boss over them and influence them by his own personality. Hence it is very important to get proper playmates.

Discipline

Frank has defined discipline as the phenomenon to regulate emotional responses. When a child is disciplined he learns how to manage his over whelming emotions such as anger, fear and grief and behave properly in different situations. He also learns how to respect elders and become affectionate to others by respecting to their rights and privileges. One cannot be disciplined over night and the parents and other older members of the family have to give proper guidance to the children in this regard.

In order to be properly disciplined the child has to obey certain regulations fixed by the society. He must have to show respect to the rights of others while enjoying privileges. It is better to be obedient to right actions than to obey blindly to elders. This discipline is to be acquired gradually through action and experience. Obedience does not mean surrender. The child has to be firm which is required for good discipline. Discipline is always constructive. Many parents resort to threats for securing obedience. Such threats may result in fear and may undermine his trust in the adult. Before giving any punishment to the child for any undesirable act it is important to understand whether it involved disobedience. The punishment should aim at enabling the children handle their own affairs progressively and making wise decisions. This should be given soon after the misdeed is under taken otherwise it may fail to associate act with it. Rewards can also be used to discipline the child but it should not be taken as regular bribes to the children. Like punishment, rewards should have direct relationship to the acts for recognition. One the whole discipline helps the child to grow up, feel secured and get along with other people to be a successful citizen.

Emotional Development

As per Bakwin "The ability to respond emotionally is present in the new born as part of the developmental process." This ability develops with the child several months before he is born. Even prematured babies do so some emotional reactions. This emotional development becomes more and more along with maturation and learning. According to Hurlock "The emotions play a vital role in child's life." Those act as motivational factors to any action adding pleasure to it. Certain emotions become dominant due to the influence of the environment in which the child grows with his relatives. Childhood, being the most critical period, it is important to have proper emotional development for his better overall development. Emotions become habits in the later stage and act as driving forces for adjustment. As stated by Hurlock "people who have predominantly happy memories of childhood are, for the most part, better adjusted as adolescents and adults than those whose memories centre around unhappy experiences." Hence the affection and warmth that a child receives in home affect development of the child very much. He should be provided with pleasant experiences during the childhood in order to help him in his sound growth and development.

Before discussing specific emotions experienced in pre-school age it is rather helpful to focus on some characteristics of the child's emotions as described by Hurlock.

1. Emotions of the child are intense as well as brief. They react with equal intensity to any situation but last for a few minutes and end abruptly.
2. There emotions are transitory. Those change frequently to even a completely opposite emotion like from laugher to tears, from anger to friendliness. This appears more frequently with children than adults.

3. Children show a wide gamut of emotional responses. Even children of the same age react to the same situation in a variety of ways.
4. Emotions can be detected by symptoms of behaviour. It is sometimes difficult to mark the emotional feeling of adult through behaviour but those of children can very well be detected by tension, fidgeting, restlessness, bed wetting, temper-tantrums, thumb-sucking, stuttering and the like.
5. The strength of emotions changes with age. Some emotions appear very strong at certain age by grow weaker at later stages. Similarly the emotions which appear weak at early stage may grown stronger after words.

   For example, when a child enters the formal school may show temper-tantrums but afterwards when he realises that there is nothing to fear these temper-tantrums not only decrease in frequency but also in intensity. Similar is the case with fear for the strangers. Gradually as a result of experience they learn to be more social and fear wanes.
6. As the child grows in age his emotional expression undergoes charge.

At an early age, children do insist in getting something which they want, without giving importance to the reactions of other. If he is not provided with it he may fly into a rage. But as age advances, he learns to control his emotions which are not accepted by his playmates or others. Here at his stage parents and elders have to play a great role in controlling their emotional expressions. In the later stage individuals realise that social approval is dependant upon the degree of control they are able to exert over the expression of his emotions.

After babyhood "a number of differentiated emotional patterns", specific in their nature, may be experienced. Some of the common patterns and stimuli which arouse them are discussed below:

Fear

Which ever stimulus frightens a child is the cause of fear. It induces the flow of adrenalin in one's body. With the flow of adrenalin, the heart beating becomes faster and energy is quickened with more supply of sugar, as a result the body is prepared with action to run away. When fear is mild the body is cautioned for self-protection. At pre-school stage, a child's fear depends upon his age, past experience, sex and his intellectual development. During this period fears arise mainly from people, animals or objects of his environment.

Most of the fears are acquired, but acquired in different ways. Sometimes elders are cause of this while knowingly or unknowingly they frighten children for one reason of other. Even elders like grand mothers do frighten them while narating stories of ghosts and demons. Loud and harse noises also cause sudden fear with children. Some animals, birds and insects also create fear in the minds of the children. Particularly during pre-adolescent period, fear becomes more generalised, taking the form of anxiety or worry. Besides this as per English and Parson, "all young children have three dominant fears—the fear of being deserted, fear of not being loved, and fear of being punished by horrible mutilation."

It is studied that children who are over protected, cautioned against danger very often, listen too

many frightening stories and are debarred of outgoing experiences and independence show much fear. This is more experienced with children who are more sensitive in nature. The particular pre-school period is characterised by phobias which are ascribed to objects like water, ballon, fire and animals like cats, dogs, butter flies etc. Towards the later stage fear may arise due to accident, ill health, sight of a dying person etc.

Iersild has given some valuable suggestions to over come fear. Some particular steps are given below:

1. It is the responsibility of the adults to discuss with the child about his fear and explain that there is nothing to be so frightened for this common phenomena. For example, if a child develops fear for a butterfly his parents or any adult member may hold a butterfly and show that the insect is quite harmless. The child may not be free from fear at the first attempt but if this process goes on he would be no more frightened out of the same object.
2. Examples of fearlessness set by other children may make the child courageous to over come a particular fear. Suppose 'Bapi' is affriad of a cat. But if he sees that his playmate 'Tapi' is playing with cats he may over come this fear.
3. "Positive conditioning" is another method for successful handling of children's fears. This is done by presenting the feared stimulus gradually while the child is engaged in pleasure giving activities. This feared stimulus may be presented with another pleasing stimulus to develop conditioning. For example, if a child is afraid of a cat we may show him the cat when he is busy in an enjoying play. For better conditioning we may show the child a cat and at the same time give him a sweet. If this process is repeated the child will over come fear for the cat and love it as he got sweet while found the cat.
4. The most effective method is to help the child to develop skills to cope with fear. When a child fears a butterfly, if he is helped to feel the butterfly and enjoy its colour he will gradually conquer his fear for the butterfly and love it.

All these processes depend on the companionship and involvement of the adults for their quick success to enable the children to cope with feared situation to have feelings of self-esteem and adequacy.

English and Parson have given some valuable suggestions to over come the phobias or irrational fears like oedipus situations.

(*a*) The parent of the opposite sex should gradually decrease the amount of physical attention he or she gives to the child.

(*b*) The child should be encouraged to do things for himself and be given opporunity to spend as much time as possible in association with children of his own age instead of his parents or other adults.

(*c*) Sleeping with parents of opposite sex should be discouraged.

(*d*) The open hostility to the parent of the same sex should not be suppressed if it is within reasonable limits.

The child should be provided with ample scope for play and other motor activities.

Anger

Anger is a better way with the children to draw attention of others to satisfy their desires. It is more frequently seen with the children than fear as the environment in which the children spend their time is more anger-provoking. As they grow older and older, the situations to provoke anger increase making the children more angry unlike fear which decreases with age. Anger provoking stimuli are utmost the same for pre-school children and babies. When older children, interfere in their work or play they resent and become angry. In play also, whether with toys or peers, when they do not get expected behaviour they get angry. Children under three years express their anger by attacking other children physically or by throwing the play materials. When they are above three they express their aggressiveness quite often through language.

In similar situations even children of the same age vary in degree of anger. Some children withstand anger situations in a better manner. According Hurlock.

"In a particular child, the ability to withstand such stimuli varies according to the need that is being blocked, the child's physical and emotional conditions at that time, and the situation in which the anger provoking stimuli occur. One child may react with petty annoyance to a situation, while another may react with an angry outburst and still another with, withdrawal, showing intense disappointment and feelings of inadequecy." Sometimes some children become so much angry that they lose control of themselves and this type of outburst, which is quite frightening, is refered to as the temper-tantrum. This is very fatiguing to the children. This may last at best for five minutes but it is directed against a thing or person to whom the child thinks to be responsible for thwarting him. At this stage the child becomes more destructive and does not hesitate to hurt others by any way like hitting, biting, punching or kicking etc. This temper-tantrum is maximum during the age 2 to 3 years. After this period it declines in frequency and intensity. It is observed that if a child does not get scope for adequate play, if interrupted frequently in his action and is expected to show much obedience, kept under strict control and not provided with situations to control his impulses may develop-temper-tantrum. Time is perhaps the most effective tool to control this type of anger. When a child is having temper-tantrum, may be left to himself for sometime to overcome this.

When a child expresses his anger and directs it towards some person of object it is called impulsive expression and this type of physical or verbal attack due to anger is extrapunitive. But sometimes the child directs his anger against himself, by blaming himself, which is called intrapunitive anger. Some children exert control over their anger and withdraw into themselves showing that they are not disturbed to that extend to develop frustration. Such type of responses are impunitive are known as inhibited responses.

There are so many factors influencing the anger of the children. Sex difference, child rearing method adopted by parents, parental attitudes, status of the child in the family, child's personality, attitude of the social group, socio-economic status of the family etc., are some major factors contributing towards the frequency and intensity of anger with a child.

Jealousy

According to Hurlock "Jealousy is a normal response to actual, supposed or threatened loss of affection. It is an out growth of anger, giving rise to an attitude of resentment directed towards a

person or object. When a child desires to get something but finds that it is enjoyed by somebody else he becomes jealous. This something may be any object or love of the parents or elders. The jealous child also becomes afraid of losing status in the affection of someone to whom he is greatly attached. This is very often seen with a child who gets a younger brother or sister to him. Before the younger one was born, he was getting love and affection from his elders as the youngest one. When the younger one is born he may feel to be neglected and as a result may develop jealousy.

It is not possible to eliminate jealously completely but can be minimised since the coming of the new born baby is apt to be a difficult period for the elder one, it is wise to prepare him for the situation before hand. When the mother would expect a child, it is wiser to stop breast feeding sufficiently before and inform the child that he is going to get a younger playmate soon. After the baby is born, parents should take care and not create a feeling in the elder one that he is being neglected. It is quite likely, that some friends or relatives may bring some presents for the baby and may show more love and affection for him. Parents should be quite conscious to keep some presents specifically for the elder one so that he feels not to be neglected. It is very harmful to punish the child for his jealously rather the parents and teachers should exchange some consolation words and appreciate him and some of his actions.

Research studies reveal that jealousy is at its peak at early pre-school stage. Girls are more jealous than boys. It is more in degree with children of 'higher' intellectual status and when there is 18-32 months age difference among-siblings. It is also seen that the eldest child in the family is likely to be most jealous and jealousy is greater in girl-girl combination. It depends a great deal on the method of discipline in the family and attitude of the mother. Sometimes parents show favouritisim to a particular child or neglect one due to some unsound reason. This favouritism or negligence is greatly responsible for making a child jealous. As jealousy is harmful, parents and elders are to be very careful in behaving with children.

Affection

Affection is an emotional reaction indicating sympathy, friendliness, helpfulness and warmth and is directed towards a living being or thing. This affection is learnt and built up as a result of pleasant experience with people and things. The affection of a child may be different from person to person depending on the way they treat him. The more people he comes in contact with and the more pleasurable him contacts are, the more people he has affection for.

Babies under five months of age show love and affection indiscriminately for those who come closer to them but after six months they recognise faces and express more affection to persons of familiar faces. Babies during the second-half of the first year appear more sensitive and show fear towards strangers alongwith love towards familiar persons. During second year they develop love and affection towards inanimate things like toys and other play materials. According to Hurlock "around the fourth year, the child's emotional dependance on the family gives way, in part, to emotional dependance on children and adults outside the home. He shows affection for those who recognise him as an individual who show interest in or affection for him and who make his contacts with him pleasant."

The intensity of love and affection of a child depends on many factors. Garrison emphasises, "love seems to be a two way affair and grows best when it is both given and received. Rejection, in homes

may leave the child's capacity for giving-forth affection undevelopment, or may cause him to seek affection from individuals outside the home. Over affection and indulgence may have as undesirable effects as lack of affection and rejection.

It is found out that girls are more affectionate than boys. Children of lower socio-economic status are also found to be more affectionate. But irrespective of sex and socio-economic status, children become less affectionate as they grow older. This may be due to their association with more people. At an older age they gradually avoid using words with the fear of being interpreted as sentimental.

Aesthetic Development

This is another aspect of development generally expected from the very childhood days. This trait enables the child to appriciate different forms or phenomena in nature. There are children who love to enjoy different forms in nature like different patterns, colour combinations etc. These children rather develop a soft tendency to protect things which please them. We can very well mark this type of difference not only among children but adults too. For example, if we observe the behaviour of a group of children in a flower garden. We can mark that there are some who enjoys flowers, appreciate their forms, colours, their dance in the breeze where as some others may not care to this beautiful sight and may try to pluck them and destroy them. Here we can say that the first group of children who appreciated and enjoyed different forms and phenomena are more development in aesthetic trait.

As stated in the syllabus prepared by the SCERT, Orissa, Bhubaneswar the children of pre-school stage may be led to acquire the following abilities to have proper aesthetic development:

1. a choice for combination of colours,
2. liking for orderliness of things,
3. ability to draw things of their own choice in available variety of media and colour,
4. ability to draw patterns and colour,
5. ability to preserve beautiful things of their choice in album or in any medium,
6. ability to sing simple songs individually or in group, and
7. ability to dance simple dances, individually or in a group.

We now find very slow progress in schools in regard to proper development of aesthetic traits. Proper development in aesthetic aspects also accelerates development in moral and ethical values. This makes a child more social and a useful member of the community. Hence necessary activities are to be organised in pre–school centres in helping the young children to have proper aesthetic development. Some suggestions are given below for guidance but activities are to be conducted looking to the social conditions and materials available in the locality.

(*a*) appreciation of different forms and colour combination in nature,

(*b*) observation of nature and drawing sketches of one's own choice and colouring them,

(*c*) taking proper care of own articles and plants in the garden,

(*d*) arranging desks, tables and chairs in the class-room and in the study room,

(*e*) keeping shoes in order in fairs, in front of temples and before the class-room,

(*f*) drawing freely on slates or sand bases,

(*g*) collection and preservation of different leaves, flowers, fruits, seeds, stones and other rare articles etc.,

(*h*) improvising different materials from things available in nature, and

(*i*) singing and dancing simple dances individually and in groups.

Principles of Child Development

We discussed various aspects of child development earlier. Emerging out of this discussion we can identify some general principles influencing development in various aspects. Some of those principles are discussed, below:

1. *Development is experienced from maturation and learning:* At the time of maturation the potential trails inherited from the parents are unfolded and develop into predictable characteristics. Children may be able to show some signs of physical skill overnight which is possible due to maturity. "Learning is" according to Hurlock "the development that comes from exercise and effort on the part of the individual through which the child brings about changes in his physical structure and behaviour and acquires competence in using his heredity resources." It is very essential to provide the child with learning situations so that the potentials inherited by the child would reach their optimum development, There is still controversy as to whether heredity or learning contributes more for the development of the child. It would be more justified to say that it is the interrelationship and interaction between heredity and learning which is responsible for better growth and development of the child.

2. *Child growth and development is a continuous process but proceeds at different rates:* Starting from the very moment of conception till death growth and development is continuous but the rate of growth and development is not the same throughout the life span. We may take the example of height and weight of a child and very well mark how the rate of growth in height and weight fluctuates in different periods. There are periods of accelerated growth and periods of retarded growth for evey aspect.

   Occasionally some of the activities appear to be abrupt. Even though not seen outwardly same activities are gradual and continuous. For example, we may mark a child to speak something overnight but for the same he would have been trying to speak after imitating others for a quite number of days, similarly teaching appears to be over night but it is a continuous process starting from its development in the jaw and cutting through the gums. Moreover, growth and development is not uniform for the entire organism. While outward organs like feet, hands and nose reach their maximum development during adolescence the lower parts of the face reach their development late.

3. *Development proceeds from general to specific:* Let us look to the movement of the fetus. It is capable of moving its whole body whereas it is incapable of making specific responses. After birth the child gradually acquires the capacity to move specific organs like fingers, eye balls etc. Hence, the motor development, occurs earlier in the structures lying close to the main axis that those in the remote areas.

4. *Development pattern is similar for all:* Irrespective of heredity all children follow a similar pattern of development. A baby can't walk before he acquires ability to stand. Similarly he must have to learn how to walk before starting to run. It may be little different for a premature baby but after a particular stage the child may make up and develop in the line of other chidren.

5. There is Correlation in Development in Most of the Traits: According to Gesell, "The products of growth are envisaged as a fabric in which threads and designs are visible." Especially we can mark correlation between physical and mental growth. The child who is having good intelligence will generally have good health, aptitude and socially desirable attitudes and interests. This view is supported by Terman who experimentally found out that "desirable traits tend to go together."

6. *Development proceeds in a downward direction:* According to this law development starts from the uppermost parts, *i.e.*, from head region and proceeds towards the lower parts. For example, in baby's skin sensitivity comes in the uppermost part of the body before it appears in the lower ones.

7. *Development follows pronimodistal law:* According to this law, as described above, development proceeds from nearer regions of the main ones to the farthest ones. For instance, muscles control appears sooner in arms than in fingures.

8. *Development is influenced by individual difference:* Growth and development, no doubt, follow some principles for all children but still a child follows the pattern in his own way and at his own rate. Frank has remarked that each individual, with his unique heredity and nurture will travel along the common highway at his own rate of progress and will attain the size, shape, capacity and developmental status which are uniquely his own in each stage in the life career.

9. *Early development is more important and critical than the later development:* At the early stage the child is more plastic in nature and easily influenced by outside agencies. Hence any unfavourable environmental condition at this stage may seriously damage the good mental and physical potentials. In the later stage as the child, grows these conditions may do less harm due to influence of learning. Hence, it is very important to guide the child properly at early childhood period to provide him with a better growth.

10. *Every child has to pass through several stages of development:* Normally there are five major stages of development for a child to pass through, such as pre-natal period, infancy, babyhood, childhood and adolescence. The periods for these stages are almost same for each child. In order to have normal growth, the children are to be provided with learning experiences according to their back ground. When the development is normal at one stage it prepares the child for normal growth in the next one. Hence a child is not to be neglected at any one of the early stages.

11. *Each stage has certain characteristic traits:* Due to individual difference among children, each stage of development of a child is influenced by the characteristic of his own traits. Sometimes lack of proper understanding of the normal behaviour of children at different

stages creates friction between parents and children. Hence it is important for parents to be conscious about the nature of individual difference in bahaviour and growth of different children.

12. *Growth with children is both quantitative and qualitative:* When a child grows in size, improvement in some qualitative areas are also marked. For example, when a child grows physically he takes more food. When in-take is more, he develops efficiency in digesting more and more in order to convert more food stuff to simpler forms to be absorbed by the body.

Besides the above principles both the rates and patterns of growth of the child can also be modified and accelerated by forces within and without. Hence to make the hereditary forces more active in bringing normal growth, the child is to be provided with better environmental facilities and learning experiences by elders.

5

An Introduction to Principles and Practice

Consider the lives of two children, both born profoundly deaf. The first grows up in a poor country where there is no educational provision for the disabled. He is malnourished and can find only the most menial of occupations when he grows up.

The second grows up in a rich country, where educational facilities are well developed. She learns to communicate, does well at school and university and although much of her life is a struggle she is able to play a full part in her community.

These accounts illustrate the first basic theme of this book: *we are all products of both biology and the environment.* At birth children come into the world with certain biologically determined equipment and are thus programmed to cope with demands made on them. Some children are clearly programmed more adequately than others. But each child encounters a different set of demands and grows up in a unique environment. How one grows from childhood to adult status is the result of the interaction between heredity and environment.

The second basic theme is related to the first: *children are always part of a system.* At first this system is the simple one of child-mother (or mother substitute). Later it becomes child-family, then child-school and later still, child-community. The essential point of emphasising that these are systems is that the child affects the mother (or the aunt, teacher or friend, etc.) as much as he or she is influenced. Early texts on child development described a one-way process; now we are more confident in asserting that the process is two-way.

An extreme example of the two-way process operating early in life comes when we consider what happens when a baby is born blind. Because there is no vision there is no ordinary response when a significant adult approaches. The ordinary response that most parents expect is crowing and gurgling of delight with arms and legs being waved in all directions. Because the baby cannot see the adult, but can hear, the response is one of 'stilling' – that is, there will be a freezing of bodily movement, so that sounds can be attended to. Unfortunately this apparent lack of interest puts some parents off and they find themselves saying how difficult it is to respond to a baby who does not greet them.

As far as possible these themes will be developed within a scienctific frame–work; that is observations will be used to illustrate certain theoretical points. In this the view of Charles Darwin is

acknowledged; he said that facts are of no use unless they support a point of view. On the other hand, of course, points of view are of little value unless they are supported by facts.

Darwin's dictum would be easier to apply to child development studies, if there were one major theory encompassing all observations. Unfortunately such a theory does not exist in psychology at large, let alone in child psychology. Perhaps human behaviour is too complex for one theory every to explain everything. But do not jump to the conclusion that there is total disarray in the ranks of those who write about child development; there are coherent ways of fitting observations together to support firmly held points of view, and one of the points of studying child development rather than just watching children is to enable this coherence to emerge.

Chronological Age Groupings

So far there has been mention of baby and child. Many terms are used rather vaguely in some texts and the following list is included now to indicate what is meant in the book. The definitions are those currently in use in Britain.

Germinal	the first two weeks after conception
Embryonic	two to six weeks after conception
Foetal	from six weeks after conception to birth
Perinatal	around the period of birth
Neonatal	the first two weeks after birth
Infancy	the first two years of life
Early childhood	two to five years of age
Later childhood	six years to puberty
Adolescence	from puberty to adulthood

Principles of Child Development

The Study of Change

The first principle is that *development primarily involves change* and so the one major aim of the academic study of child development is to establish the characteristics of age-related changes in physique, abilities and behaviour from conception to maturity.

Many people use the words growth and development as though they were synonymous. Although neither occurs without the other they do not mean exactly the same thing. *Growth* refers to quantitative change–increases in size and structure. *Development* refers to qualitative change, occurring in an orderly and coherent manner. Implicit in the notion of development is an increase in complexity. As one author has put it: 'The mental filing system not only grows larger, but it is reorganised over time, with infinitely more cross-references.'

Types of Change

Changes can be grouped into four main categories, with some being interrelated.

1. *Changes in size* include physical changes in height and weight, for example, and mental changes in memory, perception and understanding.
2. *Changes in proportions.* Relatively, the neonate's head is much larger compared to his body than that of the grown adult and there are several quite dramatic changes in proportion during the years to late adolescence.
3. *Disappearance of old features.* With age certain physical features are no longer of use and they are discarded, first teeth being an example. Some psychological and behavioural traits go as well; think of the way that baby talk is discarded, or the way that the ability to crawl rapidly across a floor disappears.
4. *The acquisition of new features.* Some new features develop as a result of maturation and some from neww learning. An example of the former is secondary sex characteristics associated with puberty and of the latter a knowledge of stamps of the world.

The Importance of Early Development

Long before scientific studies were published on child development Milton observed: 'The childhood shows the man morning shows the day.' Current thought has tended to place less emphasis on the exclusivity of the influence of early experience, arguing perhaps that early morning showers can be replaced by sunny periods in the afternoon. Despite this relatively recent shift in opinion there remains a powerful body of evidence pointing to the persistence of early behaviour patterns.

Development is the Product of Maturation and Learning

In the introductory part of this chapter the point was made that children are the products of both their biological inheritance and environmental factors. *Maturation* refers to the biological, it is the unfolding of characteristics potentially present in the individual. *Learning* is a general term in this context, referring to influences on develcpment that come through training and practice. One of the most heated areas of debate over the relative importance of maturation and learning is that to do with the development of intelligence.

The Developmental Pattern is Predictable

Every species follows a pattern of development peculiar to itself. Two laws relating to physical development in humans are:

1. *The cephalocaudal law:* development proceeds from head to foot.
2. *The proximodistal law:* development proceeds from near to far.

Applying these laws in human development leads us to expect that we shall observe improvements in structure and function in the region of the head before the trunk, the legs and feet; and in the trunk before the arms and legs. Consideration of foetal development bears out both laws.

Characteristics of Development are Consistent

1. Development proceeds from the general to the specific.
2. Development is continuous.
3. Different areas develop at different rates. A child may make rapid progress in talking and be very slow in walking; this is not necessarily a sign of abnormality.

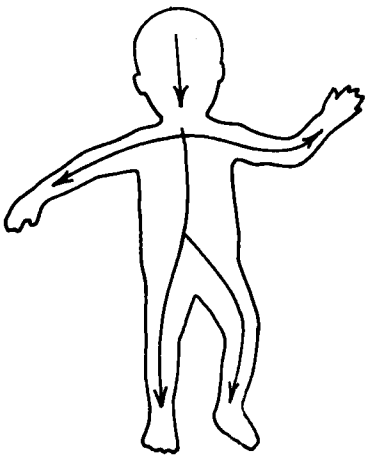


Fig 5.1 The laws of developmental direction.

4. There are developmental correlations. This is, in a way a counter-balance to point 3 above: in general, a child who lags in walking as a baby is likely to be less than average in games and other gross motor skills as he grows up.

Individual Differences

This cannot be said strongly enough: even identical twins have some different experiences and no two people are completely alike. It is essential for parents to understand this principle when they are tempted to compare one child to the detriment of another.

The Development Pattern is Periodic

Although development is consistent and follows a pattern this does not mean that it is steady across all areas. There are periods of rapid growth, and periods when nothing seems to be happening, the latter being known as *plateaux.*

Child Development and Child Psychology

Psychology is a study of *the explanation and prediction of behaviour* and child psychologists are concerned with most if not all of the topics considered by students of child development. Nevertheless, the two disciplines are not identical. Child psychology is concerned with *particular aspects* of behaviour—langauge, perception, learning, for example – while crucial to child development is the *overall pattern of change in behaviour.*

Another way of expressing the difference is that child psychology looks primarily at *content:* child development at *process*. So, when language is being studied, psychology is primarily taken up with what children say; child development with how they learn to say it and what causes variation from one child to another. Note that this is a distinction of primary emphasis: there is much overlapping of the data studied by both.

The Value of Studying Child Development

The earliest students of children were interested mainly in discovering ways to improve educational techniques, an example being the seventeenth-century Slavic educational reformer *John Comenius*. This is still a major reason for acquiring an understanding of child development, along with other practical points related to health and emotional adjustment. But there are three other major incentives.

The Testing of Traditional Beliefs

Traditional beliefs have long influenced adults' attitudes towards children; they may have a basis of truth but they should always be questioned. An example of a traditional belief now being examined is the difference in learning abilities between the sexes. Boys have always been perceived as naturally better at maths and science than girls. This may be a correct view; it is clearly of crucial importance to investigate it.

The Development and Testing of Theories

Theories of child development, as opposed to traditional beliefs, need testing and elaborating. Freud put forward the view that the child's early experiences, especially his relations with his mother, are vitally influential on subsequent behaviour. Work by *John Bowlby* and *James Robertson* based on this theory has had widespread effects on popular views about, for example, the importance of parents being with children in hospital. More recent testing of this theory by sociologists has suggested that it lacks sophistication, that we need to consider factors within the family wider than the simple mother-child bond.

The Normal and Expected

Finally, we need to have some grasp of *what can and cannot be considered normal or expected behaviour* and the conditions which facilitate both the normal and the deviant. It is a great help to the caregiver of a two-year-old to know that apparently irrational temper-tantrums are the norm rather than the exception. It is a help to realise that many young children reverse *b* and *d* when they write.

What is more, a knowledge of normal development enables us to prepare both children and ourselves for future steps. The classical example of this is preparation for adolescence. Unfortunately there is so much misunderstanding of adolescence as a phase that many parents in Western cultures have an expectation that the years 14 to 19 must bring turmoil. The result is possibly that turmoil may come simply because it is expected. An appreciation of the observed events of adolescence, is likely to lead to a different set of expectations.

Note that this book confines itself to child development—that is, its subject matter is the person up to about 18 years of age. In recent years there has been a growing interest among psychologist in psychological development into adulthood and old age. Anyone wishing to study this further is advised to read *Developmental Psychology: A Life-Span Approach* by James Birren and others (Houghton Mifflin Company, USA 1981).

Methods of Studying Child Development

The Treatise and the Biographical Record

Following the pioneering work of Comenius, one of the first people to study children as individuals, there came two distinct types of approach. One was the *philosophical treatise*, and example being

found in the work of Jean–Jacques Rousseau (1712-78). Although they played a major part in determining thought, these writers were no more than indirect in their references to children themselves.

More familiar to present-day readers was the technique adopted by those who followed the other approach, that of the *biographical record.* Johann Pestalozzi (1746-1827), a Swiss, is credited with being among the first to publish data of this kind; his record of his 3½-year-old son was produced in 1774. Almost a hundred years later, in 1877, *Charles Darwin* published *A Biographical Sketch of an Infant,* noting there that he began his recordings even during the baby's first few days for he felt convinced 'that the most complex and fine shades of expression must all have a gradual and natural origin'.

Darwin, however, was primarily interested in *phylogensis*—the evolution of the species through many centuries. More concerned with *ontogenesis*, the evolution of the individual organism, was Wilhelm Preyer who published *The Mind of the Child* in 1881. This book earned Preyer the title Father of Modern Child Psychology for he departed from earlier biographical recorders who had confined themselves to general observations and anecdotes, focusing instead on careful measurements of behaviour beginning with the development of reflexes from birth. Diary-type accounts such as these have been relatively rarely published, yet they have obvious value: they enable one to study change in minute detail, over time, with recording being done on the spot, virtually at the same time as the event. Both a comment and an explanation for their rarity was given by the American Psychologist J.B.Watson in 1928:

'Would you believe the most astonishing truth that no well trained man or woman has ever watched the complete and daily development of a single child from its birth to its third year? Plants and animals we know about because we have studied them, but the human child until very recently has been a mystery.'

The key phrase in this quotation is 'no well trained man or woman'. Observations by people who do not really know what they are looking for result in little more than a string of ill-digested anecdotes. Ultimately the most fruitful use of this technique is the generation of hypotheses for more general, more systematic study.

Questionnaires, Surveys and Interviews

Once a hypothesis has been generated the obvious way to find out whether it is likely to be generally true is to go out and ask people questions. Say one is interested in the effects on children's language development of living in a high-rise flat, the assumption being that such conditions lead to isolation and in turn to impoverished language. The next stage is to find such children and, having assessed their language development, to ask questions of their parents about where they played and who they talked to.

A pioneer in this approach was the American G.Stanley Hall, who introduced the questionnaire to child psychology and who is now best known for his work on adolescence. The questionnaire remains an invaluable tool for research workers, but it is not without its drawbacks. If it is sent by post there is often a poor return, as low as 35-40 per cent is not uncommon. Even if arrangements are made to collect it there is usually an inflexibility about the format of the questions which either annoys people or leads to false answers.

Consider the following, which might be given to the parents of six-year-old:

To the child's father:

How often do you kiss your child good night?

Every night Most nights Rarely Never

Is this a question likely to yield useful information? The commercial traveller, away three nights a week, might want to give a qualified answer, as would the father on shift work.

The Structured Interview

A more flexible approach is the structured interview in which a series of questions are put, more or less formally, in person by the interviewer. This technique yields much richer information and can be seen put to good use in the work of *John* and *Elizabeth Newson* of Nottingham University (see for example, their book *Four Years Old in Urban Community*, Allen and Unwin, 1968).

But even the best trained interviewers, or the most sophisticated questionnaires, rely on people answering truthfully and correctly. There is no sure way of establishing the honesty of a respondent, although the interviewer may have a hunch that all is not well. Rather than telling wild untruths–'All our children could speak eight languages by the time they were six'—it is possible that some people, parents and teachers being no exception, will feel that they are being examined when asked about their children. The result can be a slight distortion in the truth to allow the respondent to be shown in a good light.

The correctness of answers depending on memory is another matter. With the best intentions towards honesty in the world some people distort in their remembering. In an article published in the *Journal of Abnormal and Social Psychology* in 1963, L.C. Robbins found that parental answers to questions about their children in the past were rarely more than 80 per cent accurate. One questions, which might have been thought easy to remember, was 'when did the child first stand alone?' Fewer than 20 per cent of mothers and fewer than 10 per cent of fathers gave an accurate answer.

Laboratory Studies and Experimental Techniques

Some researchers prefer to use a technique as close as possible to that employed by other scientists–that is, they use a laboratory-like setting with children's responses the main outcome of their experiments. An example of this method is a study on children's honesty. They are brought to a laboratory where there is either a hidden camera or a one-way screen. There they are given a task and are told, incidentally, that the answers are in the examiner's book. After five minutes the examiner is called from the room and the children are observed to see if they look up the answers.

The experimental approach need not be confined to a laboratory. It can be transported almost anywhere. One might be interested in discovering the effects on children's behaviour of their being told that they have done badly on a task. One way to do this is to ask children to fill in a simple scale to indicate how tense or relaxed they feel. All children are then given a task but half are told they have done well, half that they have done badly. Then all fill in a tense-relaxed scale again.

The *advantages* of these methods are that many of the variables which might affect the child's performance can be controlled. For example, instructions can be tape-recorded so that every child hears exactly the same words said in the same way.

The *disadvantage* is that one is always sure that one can generalise from an experimental result to real life. An inherent weakness, which can be seen to apply to many other techniques as well as this, is the enormous difficulty of holding all relevant factors constant. Because of the complexity of humans it may even be that the experimenter is not aware of what factors are relevant. An example of this last point is found in the work of *Tom Bower*, who has spent many years studying babies' visual perception. He found that there is a difference in their responsiveness according to whether or not they are on their back or propped up. In the latter position they are much more alert, a finding that earlier workers appeared to have overlooked.

Observations in a Natural Setting

There are certain objections to treating children as though they can be manipulated like bunsen burners. It is better, argue some, to return to Preyer and observe certain selected behaviours in the home, school or neighbourhood in much the same way that ethologists study monkeys.

This has its attractions but it should not be imagined that it is either easy or necessarily reliable; so much depends on the observer, who must be carefully trained. If this is done, then the technique has much to offer.

If, for example, we are interested in the different responses to Father Christmas in three, four-and five-year-olds, one way to find out is to watch them when Father Christmas comes into the room. Indeed, there are some questions that can be answered only by these means. The use of video cameras has given a great fillip to systematic observation of these types, for several observers can watch the same film over and over again until they all agree on their interpretation.

But that last word, *interpretation*, reveals a fundamental weakness. No matter how many video films are taken, ultimately behaviour has to be interpreted and this is no easy matter. Take a child who quarrels with another. Was that action a push, or a smack? Was it accidental? Was it intentional but was the force used accidental? When one adds the possibility of something happening off-camera, or out of the view of the observer, the problems multiply. Nevertheless, if one is researching into relatively discrete, easily definable behaviour—for example, how many times a child gets off a chair in a 30-minute period—personal observation is invaluable.

Talking to Children: the Clinical Method

The American psychologist George Kelly once said words to the effect: 'if you want to know what's wrong with someone, ask him.' In the same vein some investigators have approached the problem of finding out about children simply by asking them questions. Much of our understanding of children's concepts has been achieved in this way.

This approach has much to commend it. By varying the inflection of one's voice, by use of repetition, by pausing, by changing vocabulary one can tailor questions to individual children and really get to each of them.

But it, too, has its drawbacks. It is *time-consuming*; some children take a very long time to relax sufficiently to talk freely and even if one can establish rapport quickly there is limit to the number of personal interviews that can be conducted by any one enquirer. More serious is the limitation on the *range of children available*; the pre-verbal are obviously not accessible. What is more, the *validity of*

the findings is often questionable for one can never always be certain that the child is not giving answers that he feels the adult is looking for.

Cross-sectional and Longitudinal Studies

If one is seeking information about differences between certain ages one can approach the task in two ways. The first is cross–sectional—that is, a group of children of different ages is looked at. An example of this approach is work recently carried out in Europe and America to investigate the relationship between lead and intelligence. By measuring the amount of lead in the body conclusions can be drawn about the changes that occur between, say, the ages of 6 and 12.

A longitudinal study is one in which a group of children is followed through several years to monitor their progress. An example of this technique is the National Child Development Study which followed thousands of children all born in 1958 and reported on how they had fared up to the age of 22. (For details consult the National Children's Bureau, 8 Wakeley Street, London, ECI,)

The advantages and disadvantages of the two approaches may be summarised as follows:

Cross-sectional studies

Advantages are that they are	time saving relatively cheap can be carried out by one person.
Main *disadvantage* is that	they may give a distorted picture of the developmental process, since different factors could affect each age group.

Longitudinal studies

Advantages are that they	allow for each child's progress to be analysed enable growth and change within children to be measured
	give an opportunity to consider both maturational and environmental factors.
Disadvantages are that	different experimenters may be required because of the time involved
	they are more expensive than cross-sectional work
	data may be cumbersome to analyse.

Ethics

Whatever is done with or to a child should, ethically be in his or her best and direct interest. It should also be done with the informed consent of either the child or the child's parents.

This can raise some difficult questions. If one informs a child, or parents about an observational study, this might affect the child's behaviour and thus invalidate the work. At what age should one assume that children can have sufficient understanding to give informed consent? If it is uncertain whether or not a research student's results will be of value can that student say that asking a child to spend time being tested is in *that* child's direct interest? Similarly, is it ethical for a child to be made uncomfortable during an experiment ? Can be legitimately ask questions of children about their families and friends?

There are no pat answers to any of these ethical problems. Nevertheless, they cannot be ignored and each study has to be considered on its merits.

The Value of Replication

The obstacles to a scientific study of human development are daunting. No one method is flawless and children themselves are so complex, living in a multi-variegated environment, that it may seem all too much. One partial solution lies in the value of replication. If one research study suggests that children behave in a certain way under certain conditions then it is essential that the study be repeated to see if the same results pertain.

A recent failure to replicate results can be found in studies on the effects of mothers' behaviour according to their experience with their baby during the so-called 'sensitive period' immediately after birth. When early results appeared in the 1970s, it seemed that early skin-to-skin contact, for example, was a prime determinant of subsequent maternal behaviour. However, more recent attempts at repeating these studies have produced negative or inconsistent results and the early enthusiasm has been tempered.

On the other hand, the value of replication has also been shown positively: it can be said with some certainty that birth order has some relationship to intelligence, for many studies have shown that the youngest of a large family tends towards being the least intelligent.

Conclusion: Matching the Technique to the Question

One of the skills of the development psychologist is that of choosing the appropriate technique for each question. Cost and time should not be constraints, although unfortunately they often are. Sometimes different techniques can be used to answer different aspects of the same overall question; this is particularly the case in certain educationally related topics when the complexity of the subject dictates a complex investigatory design.

6
Aspects of Development

In the chapter of principles of instruction at the pre-school stage it is clearly stated that a teache- has to create a healthy atmosphere for any interaction by establishing rapport with the children and showing motherly attitude. Every individual child should be made to feel at home with the teacher so that she can carry out any activity successfully and effectively aiming at development in different aspects.

So far as the aspects of development are concerned, broadly five aspects may be identified as follows:

1. Physical aspect,
2. Health aspect,
3. Social and emotional aspect,
4. Cognitive aspect, and
5. Aesthetic aspect,

But these five aspects are not to be taken up as water-tight compartments as the child is a well integrated organism and any development in one sector is likely to affect the rest. Eventhough the development is integrated it is convenient to discuss on all these aspects separately for better understanding.

1. Physical Development

This aspect mainly aims at bringing about development in two major areas:

1. Development of general physique and development of larger and finer muscles.
2. Development of proper musclar co-ordination.

Development of general physique refers to the proper growth of different limbs of the body whereas development of muscles refers to make these limbs strong so that child acquires strength. When a child is born, his body appears to be quite soft. Day by day he tries to make the body harder by making the muscles stronger through movement of limbs regularly. When he becomes two years old and acquires the skill to stand, walk and run and is able to play different games, his muscles, both finer and larger,

grow stronger and bring more strength to his body. As it is essential to develop muscles stronger to keep the body more fit for day to day work, a pre-school worker should plan for different games and other forms of physical exercises so that alongwith development of muscles the surplus energy with the child is properly utilised.

Alongwith development of muscles, it is also quite needed to have proper co-ordination between different muscles' movement resulting :

1. proper body posture in sitting, standing, walking and running,
2. proper care while handling different objects,
3. proper care in transporting things from one place to other, and
4. care in transferring liquids from one container to the other etc.

In general, muscular co-ordination is essential for having proper movement of the entire body for doing any work skillfully. This can very well be achieved when the children get ample scope to play and do different work where some amount of care is necessary. Starting from hard works like digging, earth, carrying loads etc. upto works like drawing and painting, clay modelling and milking the cow etc., there is scope for muscular co-ordination.

2. Healthful Living

Sometimes even though a person appears to have a good physique he might be suffering from any ailment. In that case we cannot say that he maintains a good health. A person is said to be healthy when his body and mind and free from any ailment. As we require exercise to keep the body fit, we have to take measures to maintain a good health. Hence inorder to enable the young children to maintain a good health we have to look to their food habits, personal and environmental cleanliness and preventive measures for different diseases. For that looking to the age level and calory requirement for that age to keep the body function and grow, we have to prescribe a balanced diet for them. This will prevent malnutrition and give the body resistance and strength to fight against the attack of may diseases.

The child gets some diseases due to want of personal hygiene. It is necessary for the child to keep his body clean, wash his teeth and clean the tongue regularly, develop proper toilet habit, comb his hair and cut the nail to keep it clean, wash his hands before and after taking food etc. to keep his body away from some diseases. Alongwith personal cleanliness, the surroundings or the immediate environment in which the child spends most his time, needs to be kept clean. Those are his living room, class-room, school compound, toilet and the community at large. This will fetch him and other children an atmosphere in which they can get fresh air to inhale and clean water to drink. Hence a teacher of pre-school education should try to cultivate interest in them to volunteer for keeping the surrounding clean and thereby lead a healthy life.

In spite of nutrition and cleanliness there are certain diseases like Cholera, Small pox, Diptheria, Hooping cough, Polio and Titanus which attack a normal child. After advancement of science it is now seen that these diseases are controlled in case the children are given preventive measures for these diseases. Preventive measure for Titanus even starts from the pre-natal stage. For many of the diseases preventive measures are given to the children at the early stage. Hence for a better health, our children

have to receive these preventive measures in order to develop registance against these diseases, thereby maintain a good health.

3. Social and Emotional Development

Social Development

Man is a social being. He lives in a society with his family members for mutual benefit and safty. A child being the future adult member has to develop the quality of a social being. Hence as parents, teachers and adult members we have to provide the children with situations where they can grow and develop socially. For this he has to establish proper relationship with his peers and elders. He has to learn to live a harmonious life with the community and develop self-realisation and sense of security. He has to acquire good social habits and proper manners. Hence, to grow as a socially desirable person, he has to observe certain social customs and behave as a part of the society. As these children are quite young to do all these things, the elders have to design direct and indirect programmes so as to cultivate these qualities in their children. It is possible through continuous interaction with elders and active participation in social functions. We have a number of societies which differ among themselves in anticipating required manner and behaviour from their members. A child is expected to grow and develop as per norms fixed by the other society, even though it is different from the norm fixed by the other society.

This social aspect is always relative and subject to modification as per the need of time. Even it can undergo frequent and silent changes when felt by a majority of people. But what ever norm is fixed from time to time we have to adjust, otherwise we may be taken as unsocial elements. When some one goes against the law fixed by the society he is considered to be anti-social and finds no place in the society. Hence, we have to develop programmes, even through games and play, story telling and singing songs etc. through which we can allow a child to develop socially.

Emotional Development

Child by birth is self centred. He normally reacts when some one attacks his ego and tries to snatch away his share. This reaction may make him emotionally disturbed and unbalanced and create some further complicacies. Hence, it is the duty of the teachers to enable the children to learn how to control their emotions. This is to be taken up through different activities specially designed for it. Social and emotional developments very often come together. Through mass play and games, story telling, drawing and painting competitions, going round different places of importance together and singing and dancing together, one can help in bringing emotional development with children.

4. Cognitive Development

This aspect of development refers to the knowledge in different directions. Mainly we take care of three major areas while planning to have development in cognitive aspect. These are :

1. Language skill,
2. Computational skill, and
3. Exploration of the environment.

So far as the language is concerned, all children's minds are like clean slates at the time of birth. They can pick up any language gradually as their medium of expression when exposed to a community

speaking a definite language. Even two identical twins can speak, two different languages equally well if brought up separately from the very beginning in two different languages. It may be difficult for us, the elders, to acquire skill in a foreign language but a three years old child will not face so much difficulty in having fluent conversation in that foreign language if exposed from the beginning.

For language development a child has similarly to be provided with required situations, where he can be encouraged to :

1. respond freely,
2. express as far as practicable spontaneously and correctly,
3. ask questions,
4. answer questions,
5. hear and recite poems,
6. hear stories and tell the stories,
7. narrate simple events and incidents,
8. imitate the sounds of birds and animals,
9. describe what is seen in the screen,
10. tell a story looking to the pictures,
11. carry out discussion with his peers and elders, and
12. pronounce common words correctly, etc.

Sometimes children show extra curiousity to know about some aspects which may appear to the elders vague. Eventhen a child should not be made disheartened with orders to keep quiet. This may have the bad effect of making the child shy and a back bencher. It is a good sign for language development that these young children are even capable of starting conversation with animals and inanimate objects. When a child plays along he goes on speaking a lot of things to himself which definitely counts towards the development of language.

It is very often seen that they learn to speak some unsocial and unparliamentary words which may disturb elders. The elders are solely responsible for this. They might be speaking such words while they lose temper out of rage or when abuse others. Hence, it is very important for the elders to control themselves while speaking before the children. They should start having conversation with the young children in a simple and commonly used language so that it is easy for the child to acquire skill in the language.

Computational Skill

We expect the child to acquire some simple mental arithmetical operations like counting at least upto 50 and doing simple additions and subtractions within 10. They are not required to do this in pen and paper. With the help of different animate and inanimate objects and materials they can count numbers and do like addition and subtraction. For example, while playing they should be able to count how many children are there in the line. If ten children are there and three of them go to collect flowers they should be able to tell how many of them are left in the line.

Besides knowledge about his simple computation they are expected to know about *shape* and *size* of different objects and materials. They should be able to classify different objects belonging to shapes like rectangular, triangular, circular etc. and tell which one is bigger when compare two objects. They have also to feel and say whether a particular object *weighs* heavy or light when compared with another object.

While playing in nature they come across objects of *different colours*. They are also expected to identify the objects of common colours like Black, White (they are basic colours also, Red, Yellow, Blue and Green. By collecting objects of these colours and classifying those, can be able to identify colours rightly.

Alongwith above skills they are also expected to tell about *time* by looking to the sky. We do not expect that they can give the exact time by looking to the watch. It is too much for a young child. But they can say looking to the rising sun that it is morning and looking to the setting sun that it is evening. Similarly when the sun is over the head, he can say the time to be noon. When the sun is there in the sky and when there are stars in the sky the child should be able to say that the time is day and night respectively. Besides he can feel different objects and be able to say whether one is harder or softer than the other, whether one's surface feels rough or smooth to the hand. Similarly, he has to be able to say whether an animal or tree is *taller or shorter* than the other, whether an object is placed *higher*, whether something is thick or thin.

They are also expected to tell the names of days in a week and months in year. They can also show and name the directions by looking to the rising and setting sun. Different seasons have their impacts on our lives. Major activities in the society and locality are influenced by these seasons. Children can feel this and give a common account of seasons like Rainy season, Summer season and Winter season. Main weather phenomena like could, rain, fog, lightening should be understood by them. They should know about major land forms like bills, plains, rivers, sea etc. wherever possible. They are to be acquainted with sources of water, places of worship, means of communication and economic activities of the locality as far as practicable.

A teacher of pre-school education should keep in mind that this knowledge cannot be achieved by children simply by hearing to any discussion. The teacher has either to take the help of natural phenomena or objects or to create situations as the case may be so that the children learn by observing the same. For this the teacher has to plan and carryout a number of activities for the children.

Environmental Studies

This is a very important aspent particularly for the children of a developing country like India. We are proud that the nature in our country is gracious enough to provide us with vast natural resouces and a nice climate. Most of the states like Orissa, West Bengal and Andhara Pradesh are having such a moderate climate so that in most of the time the children can go outside and play with plants and animals. We get fruits and flowers throughout the year. Hence our children can have direct and natural interaction with these living and no living objects so as to get first hand experience. We need not think of costly toys and pictures always for our children for conducing activities for their growth. The children may learn lot of thing by themselves having free interaction with the environment.

The environment is of two types, one is the natural environment and the other is the social

environment. The children may be allowed to wander in the natural environment, observe different phenomena like rain, storm, clouds sailing in the sky, lightening, spring on a hill, river, sea etc. and play with different kinds of fruits, seeds, flowers, leaves, stone, pables, sand, soil, water etc. to learn a lot of things. That will cause the outlet of their inner urge and balance their emotions. They can get scope to know and understand about why and how of many incidences. While playing with different natural objects, they can create a lot of things particularly in drawing and painting, modelling preparing toys out of natural and waste material. Similarly they can interact with their social environment and get scope to develop socially and emotionally. In a society people observe different social functions. The child can find himself one with other members and participate in social functions to know about the customes and way of life of social beings. By that, he gets scope to be acustomed to the principles laid down by the society in which he is going to live as a member.

Our country is still poor country. Except some costly English Medium schools, no pre-school centre can purchase costly learning materials like toys, charts, models, etc. for the children and for our good luck we are gifted with vast natural resources and a pleasing climate. Hence, for the education of the common children we have to plan for the best utilisation of natural and social environment and make it meaningful and useful for the growth and development of our children. Various educationists, particularly in the field of early education, have invented a lot of programmes for maximum utilisation of natural resources. The *Thematic Approach* is now considered to be quite useful for our children. In this approach a theme or a phenomenon or even a social institution like the market, the post office, a pond, the river, the hill or even a temple is taken as a theme and the children are exposed to his place or institute to learn various things and develop through different activities. As this approach is a new one, a teacher has to foresee the areas of development and plan different activities accordingly. This is proved to be useful now a days for all-round development of children.

5. Aesthetic Development

We aim at creating a sense of appreciation among the children for beautiful things and forms. This aesthetic development causes moral development with the children afterwards. Here the teacher takes care to create situations for the children for orderliness and love for different objects and forms in nature. Under cognitive development the children are expected to recognise different colours but under aesthetic development they are expected to learn how to combine these colours to create a beautiful pattern. They develop the attitude of loving natural objects like flowers fruits, leaves and appreciate their colours, shape, arrangement etc. They take care of these things alongwith their belongings like books, note books, pens, pencils, dresses etc. They like the orderliness of things like trees in a line, arrangment of desks and chairs, standing in a queue etc. They preserve different things and objects carefully without causing destruction.

Drawing pictures and colouring them properly, modelling shapes rightly, singing songs in tunes, dancing simple dances etc. all come under aesthetic development. Personal cleanliness and cleanliness of the surrounding also causes aesthetic development with the children.

7
Genetics

Instructions for Development

No one tells a bay what to do when it is in the womb. It starts as a couple of tiny cells and then, if all goes well, in nine months' time it is born, with body, arms, legs, head and sometimes even hair. Inside it has a delicate brain, two sets of teeth and an *in-built programme for later development.*

If no one tells the baby how to develop there must be some organisation within it, which arranges everything so that at certain times certain processes will take place. This is just what does exist: each baby is born with a set of *instructions* for development.

To start at the beginning: life begins with a collision between male and female. The male part is one of millions of sperm cells which are deposited into the female body at a time of sexual intercourse. These cells 'swim' up into the female's uterus where they encounter female cells (ova) that have been released by the ovary shortly before intercourse took place. One sperm buries itself in one ovum and together they travel down the uterus where they lodge in a thick, warm lining and immediately begin to grow. Together these two tiny cells, kniwn as a *zygote*, contain a complete set of instructions for development.

To discover more about these instructions we need to know more about the way these cells are made up. Each has two main parts, a *nucleus* in the centre and a jelly-like substance surrounding it called the *cytoplasm*. Cells grow following the action of the nucleus on the cytoplasm and it is in the nucleus that we can discover more about the programme of instructions. Almost every cell has, in its nucleus, 46 *chromosomes*, in pairs, one from the father and one from the mother. Each pair is numbered from 1 to 22. Why only 22, when it is known that each parent contributes 23? The answer is that the last chromosome is given a letter, either X or Y, rather than a number. These XY chromosomes determine the baby's sex: if the packet has two Xs then the baby will be a girl and if it has XY it will be a boy.

The only cells which do not have 46 chromosomes are the sex cells, which develop at puberty. Since these are designed to join with another cell to start the whole process again they have only 23.

But chromosomes themselves have to be further examined if we are to understand the genetic programme fully. Chromosomes consist basically of a long stretch of *deoxyribonucleic acid* (DNA)

with associated molecules. A *gene* is a segment of the DNA on a chromosome. Genes seem to exert their control over development by regulating the production of proteins, thus affecting the chemical reactions in the body.

Genes then, are the *agents of development*. They are very, very small. It is difficult to imagine just how small they are but it helps to realise that if all the genes concerned in the initial instructions of all the people alive in the world today were added together they would weigh less than a postage stamp.

It sometimes seems odd that no two people in the world are exactly alike. To understand why this is so go back to the genes. If we had only a few genes each then the possible combination of height, weight, shape of nose and colour of skin would be quite small. But we have lots of genes, about 12,000 pairs each. This means that the possible combinations of sperm and ovum total nearly 300 trillion. No wonder we are all different.

There are, of course, occasions when two people are alike, when identical twins are born, although the word 'identical' is misleading since even twins are not exactly the same, having, apart from anything else, slightly different experiences in the womb. But similarities are certainly there, due to the fact that identical twins are formed from a separation of the two original cells, so that both sets contain the same 46 chromosomes. Non-identical twins are simply the result of two ova being fertilised at the same time. The technical terms used for twins are *monozygotic* for identical and *dizygotic* for non-identical.

Two other words, frequently encountered in the literature on genetics are *genotype* (the genetic make up of an individual) and *phenotype* (the actual physical or behavioural trait—e.g. height or intelligence—of an individual).

Genetics—the Laws of Inheritance

An early student of the laws of inheritance was a German mathematician called *Maupertuis* who, in 1752, recorded a Berlin family which had some members in each of four generations with extra fingers or toes. Being a mathematician. Maupertuis worked out the odds against this happening by chance and it was this kind of work that was the forerunner of the calculations of the man whose name is still associated with the basic laws of genetics: *Gregor Mendel*. Mendel was a monk who had hoped to be a teacher but who failed his exams because he was said to have lacked 'insight and the requisite clarity of knowledge'. Disappointed, he returned to his monastery and devoted most of the rest of his life to a study of plants.

At this time, rather more than 100 years ago, it was commonly thought that while a boy could inherit his father's hair or his mother's mouth the general pattern of inheritance was a blending of family characteristics. Mendel's contribution to the study of genetics was the formulation of two major laws, the first of which being that *genes do not blend, they separate*. Since genes come in pairs there are two possible courses of action:

1. If both are the same, then the child will be born with that characteristic.
2. If they are different, then one gene will win.

The winning or losing is predetermined because genes are either *dominant* or *recessive*, and the dominant always wins. But the recessive gene stays in the cell and may be passed on to following

generations. This explains why a certain characteristic can remain within a family for several generations without coming out.

To take an example: brown eyes are dominant, grey are recessive. So if a brown-eye gene couples with a grey-eye one the child will have brown eyes but the brown-eyed person will carry the grey-eye gene. If he or she mates with another person also carry a grey-eye gene, then the two recessive genes may meet, in which case their child will have grey eyes. So two brown-eyed people may have a grey-eyed child. See Table 7.5 for an illustration of this point.

Table 7.1 Dominant and Recessive Characteristics.

Dominant	*over*	*Recessive*
Round head		Long head
Shortness		Tallness
Brown eyes		Blue or grey eyes
Green eyes		Blue or grey eyes
Astigmatism		Normal sight
Long or short sight		Normal sight
Wavy hair		Straight hair
Long eye lashes		Short eye lashes

Some characteristics are carried on the X chromosomes and are therefore known as *sex-linked.* The most well-known are colour blindness and haemophilia (a condition in which bleeding does not stop naturally). Far more males than females are colour blind because females always inherit two X chromosomes and can therefore have the colour blindness gene cancelled out by one from the other chromosome. Since males have only one X chromosome they do not have this chance.

Mendel's second law was that of the ratios of inherited characteristics. Earlier work was devoted to finding out the odds of having extra fingers or toes, so Mendel took this a stage further and put forward a general law. To return to brown and grey eyes: if eight people, each with a brown and a grey gene, produce four children. Mendel's law is that the odds of a child being born with grey eyes are one in four (see Table 7.2). So only Mr. and Mrs. B's child has grey eyes, because he or she inherited two recessive genes. It can be seen from this that the dominant gene 'wins' only when both have entered a cell—they both have an equal chance of actually being inherited.

A possible objection to the picture that has just been presented is that some characteristics are observably blends, skin colour being an example. Yet Mendel said that genes do not blend. The explanation for this is that not all characteristics involve only a single gene, some involve two or more. Skin colour is the result of four genes in two pairs. Thus, the first generation of a black-white couple will be an intermediate colour. If the family interbred the resulting 16 grandchildren are likely to be: one black, one white, four dark, four light and six in between.

Table 7.2 Mendel's Second Law

	Mr A	Mrs A	Mr B	Mrs B	Mr C	Mrs C	Mr D	Mrs D
	BROWN	BROWN	BROWN	BROWN	BROWN	BROWN	BROWN	BROWN
Genes	grey	grey	grey	grey	grey	grey	grey	grey
Passed on	BB		gg		Bg		gB	
Child's eye colour	brown		grey		brown		brown	

Gene and Life Span Development

It is sometimes naively assumed that the influence of genes stops at birth; in fact only a fraction of the genes in an individual's genotype are active at any one time. Different genes may be active at different times and different sets of genes may be active at the same time in different cells of the body. The understanding of child development is not complete without a realisation that new genes are brought into play with age: certain behavioural characteristics absent in early childhood but present later are not due entirely to environmental origins.

Genes or Environment

There was a mention of a fundamental theoretical viewpoint: the interaction between biological factors in an individual and the environment. A study of genetics brings one face to face with this interaction.

Cases of *identical (monozygotic) twins reared apart* provide fascinating reading. A centre for such studies is the University of Minnesota where *Thomas Bouchard* and colleagues have carried out a series of tests on twins, many of whom had not seen each other since infancy. The 'Jim twins', both called Jim, are an extreme example. They were adopted as infants into working-class families. Both liked maths but not spelling, both worked part-time as deputy sheriffs, both drove Chevrolets and went to the same state for holidays, they share smoking and drinking habits, both put on 10 pounds at the same time in their lives, both have a 'mixed headache syndrome' which came on at the age of 18 in both cases—they have headaches with the same frequency and the same degree of discomfort.

The pattern emerging from the Minnesota work is one of much greater similarities between twins that Bouchard himself had expected, psychiatric histories and measured intelligence quotients being strikingly close.

But there have been some differences emerging from the Minnesota pairs, notably smoking habits, so even these data do not support the notion that the environment is of no importance. It must also be borne in mind that the popular press is liekly to seize on the remarkable and ignore the humdrum stories of twins who are not alike; who would ever print a story of two brothers who drove different cars and went to different states for their holidays? While the notion of a combined influence of genes on intelligence, it is apposite here to quote one of the Minnesota scientists: '. . . there will be material that will make environmentalists very happy and material that will make hereditarians very happy.'

Racial Groups and Genetics

There are undoubted, obvious to the naked eye, consistent genetic differences between racial groups—

one has only to look at skin and hair to see that. It is likely that these immediately obvious differences are the result of biological adaptation to climatic conditions. For example, a fair skin is suited to a climate when there is relatively little sun since this allows a greater uptake of vitamin D from sunlight.

It may seem facile, but it is true, to say further that the observable differences between races are, genetically speaking, often no more than skin deep. The position is this: there is enormous genetic variation *within* any racial group and the uniformity of appearance does not imply uniformity in other genetically influenced characteristics. Recent biochemical research suggests that if two individuals are taken at random from the same racial group they will be almost as different from each other, genetically, as two chosen at random from different racial groups.

Chromosomal Disorders

Chromosomes may break, or join in the wrong order, or an extra one may appear. Minor defects may cause relatively few problems but a major defect can be serious.

One of the best understood examples of a *mental disorder* caused by a major gene defect is *phenylketonuria* (PKU). People with PKU suffer a build-up in the blood stream of toxic chemicals that interfere with the normal development of the nervous system. It is now known that the condition is inherited via a recessive gene—that is, it comes from both parents.

One of the best known example of *abnormality* caused by an extra chromosome is *Down's syndrome*, sometimes known as mongolism, in which the child has an extra 21 chromosome.

What is less well-known is that defects involving chromosomes often have a critical effect *in utero;* in the United States they account, possibly, for about 100,000 miscarriages a year—that is, about one fifth of the total for that country.

Allied to clear-cut conditions like Down's syndrome are a number of disabilities in which heredity seems to play a part but in which our knowledge of the precise means of transmission is incomplete. Some of these are shown in Table 7.3 The recurrence rate is raised if there is already more than one affected perosn in the family. For example, if parents have already had two children with spina bifida the risk rises to about 1 in 8. In all cases where there is a chance of a child inheriting a handicapping condition parents should seek genetic advice which takes their own family into account. They should not try to work out the odd themselves from a book.

Table 7.3 Genetically Related Risk Factors

Spina bifida cystica	1 in 20 risk for siblings of affected people
Cleft lip, with or without cleft palate	1 in 30 risk for siblings or for sons of daughters of affected people
Congenital dislocation of the hip	1 in 40 risk for brothers and sons
	1 in 10 risk for sisters and daughters of affected females
Down's syndrome	1 in 100 risk for siblings of affected person irrespective of matemal age
Diabetes (onset under 30 years of age)	1 in 20 risk for siblings of affected people

From Human Gentics, July 1972, Department of Health and Social Security.

Where there is a chance of a child inheriting a handicapping condition parents should seek genetic advice takes their own family into account. They should not try to work out the odds themselves from a book.

Close Relatives as Parents

From what has already been noted about recessive genes it may be assumed that any parents who are likely to pass on to their children a 'double dose' of defective genes are, by definition, more likely to produce an abnormal child. This is observably so, in that the closer the parents are related the more probable it is that their children will be defective in some way. The highest risk comes from a brother-sister liaison, a finding which some say is at the root of the incest taboo.

8
From Conception To Birth

Pre-natal Development

Ways of Gaining Information on Foetal Development

There are four sources of information about life before birth:

1. *Animal studies.* It is possible to watch the development of a chick by treating the membrane of an egg to make it transparent. Other animal studies—for example, on the guinea pig—have stimulated a good deal of further work on humans.
2. *Human studies.* Information can be obtained about human development from the observation of a foetus which has had to be removed from the mother while still alive. The foetus, along with the placenta, can be removed by caesarian-section and placed in a salt solution at blood temperature. Since the normal supply of oxygen is cut off the period of life is short.
3. *Prematurely born* infants often survive if born during the latter part of the seventh month of pregnancy, the normal length of which is 280 days.
4. *Special apparatus* can be attached to the mother's abdomen, enabling observations to be made. For example, one mother studied the intensity, location and frequency of her baby's movements during the fifth and seventh month and found that there was a relationship between her activity and that of the baby.

Embryonic Development

The world *embryo* is used for the developing cells during the first three months of their life.

Early growth, a result of the action of the nucleus on the cytoplasm in each cell. At first the changes are simple division, the original cells multiply and become a ball-like mass. Next, some cells are forced to the top of this structure and the ball becomes a hollow sphere. The organisms which will be born develop from these upper cells.

By the *second week* development has been rapid and the embryo is linked by means of the umbilical cord, to a spongy mass known as the *placenta.*

About *three weeks* after conception the embryo is approximately 4 mm long and the heart begin to beat.

At the *sixth week* recognisable structures of arms, feet and eyes have emerged, although the organism is, at this time, motionless.

During the *eighth week* spontaneous movement begins.

Foetal Development

From the beginning of the third month the individual is known as a *foetus*. Growth continues at a rapid rate, as shown in Table 8.1 and 8.2.

As Fig. 8.1 indicates, proportionately the foetus is much more 'top heavy' than a fully grown person—that is, the head is relatively large.

Table 8.1 Foetal Development: Functions

Approximately:	
Beginning of the 3rd month	grasp reflexes appear
3rd month	taste buds develop in what is to be the mouth
4th month	many reflexes are present
5th month	some kicking may begin
6th month	movement continues, sucking begins
7th-8th month	an intensification of movement and the beginning of crying

Table 8.2 Embryonic and Foetal Development: Size and Weight.

Age in months	*Average length in centimetres*	*Average weight in grams*
Ovum	1/93	1/1,700,000
2	2.6	—
3	9.0	19
4	16.7	100
5	24.3	312
6	31.1	667
7	37.1	1151
8	42.4	1754
9	47.0	2396

What Affects Pre-natal Development

An old superstition asserts that if a pregnant woman is frightened by a rabbit she will have a baby with a rabbit-shaped birthmark. This, of course, is no more than a superstition but like many old beliefs there is a grain of truth in it if one digs deeply enough.

The grain of truth in this case is the fact that a mother's anxiety can affect the baby she is carrying. The mechanism is like this: marked changes take place in one's body when one is under stress. One of the changes brings certain substances into the blood stream. A pregnant woman who is stressed will have these substances in her blood and they can be conveyed to the baby via the umbilical cord. This does not mean that all pregnant women under stress will have deformed or in any way different babies, it does mean that a mother who experiences *severe stress* is likely to have a fretful baby.

Fig. 8.1 Prenatal development. Adapted from C. Martin and E. L. Vincent, Human Development, Ronald (1960).

Shortages of food can play a part, too, although nature has ensured that the baby has first pick of materials that may be in short supply. So a mother who is undernourished may produce a healthy baby put at her own expense. *Severe undernourishment* can lead to still births or physical impairments.

Toxaemia of pregnancy (poisons in the blood supply), *bleeding* during pregnancy or *anoxia* (an undersupply of oxygen) can all lead to damage in the developing baby. Some investigators have suggested that many of the naughty children one encounters, especially those who are overactive, clumsy and confused, are suffering from a mild form of brain disorder which is a result of prenatal influences. Such theories, if shown to be true, would be of great importance when the treatment of such children is considered. It is, however, generally acknowledged that many factors contribute to behaviour problems, prenatal influences being only a part.

The mother's health can affect the baby, although the placenta filters out most viruses and germs that may be present in the mother's blood stream. A well-known cause of damage is, however, German measles (Rubella) which, if contracted during the first three-months of pregnancy, can lead to defective vision, hearing loss or intellectual retardation.

There is an undoubted association between *smoking during pregnancy* and the development of the child. The National Child Development Study demostrated that when a mother smoked 10 or more cigarettes a day foetal mortality increased by 28 per cent and the average birth weight was reduced by 170 grams compared to babies of non-smokers.

Such associations do not *prove* that smoking causes low birth weight. Perhaps the kind of woman likely to smoke is also the kind of woman likely to have a low-weight baby for reasons other than smoking, but when maternal age, social class and height are allowed for statistically, the relationship between smoking, foetal mortality and lower birth weight remained. Further strength to the argument is given by the observation that women who gave up smoking by their fourth month of pregnancy were no more at risk than those who had never smoked.

A similar picture has emerged from American studies of *drinking during pregnancy*. Alcohol can cross the placenta to the foetus and it is known that heavy drinking can produce the *foetal alcohol syndrome* which leads to significant impairment in children. Now it is thought that even moderate drinking, especially during the first four months of pregnancy, may lead to a greater risk of spontaneous abortion, minor malformation and slower development during the early stages of infancy at least. Not all British doctors accept the American findings and this is undoubtedly an area where further research will be forthcoming.

Birth

The Event

The physical act of birth is still surrounded by much mystery. It is no accident that a slang term for being pregnant is 'in the club' for it is an exclusive club, with shared experiences just as powerful and cutting across far more social barriers than any that bind old students of a school or college. If pregnancy is a club then birth is a further initiation rite.

What *precipitates the birth* of a baby is still not fully understood and there are enormous variations in the extent and the events of labour. For some women the process is simple and enjoyable but for others the experience is nasty, painful and long. The baby may be the wrong way round, or get stuck or just take a long time before being born at all. Anything out of the ordinary carries an element of risk as far as subsequent development is concerned. Although not every breach birth (when the baby is the wrong way round) or forceps delivery, or precipitate birth results in a damaged child there is a link between difficulties at birth and subsequent vulnerability. Controversy surrounding *induction* is an example of awareness of this point. If a baby seems to be slow in coming it is possible to hurry the process along, i.e. to induce the birth. Unfortunately the baby is often not fully developed—the liver may not be working properly, for example—and it may be necessary to use an incubator for the first day or so. As a result of anxieties about this practice it is now not adopted in many hospitals unless there are pressing medical reasons.

Pre-maturity

The average length of pregnancy is about 40 weeks. The average birth weight in developed countries is between 7 and 7½ lb, about 3.2–3.4 kilograms. Children born as early as 26 weeks have survived, as have those weighing as little as 1½ lb, or 0.7 kilograms.

It was common in the past to lump all kinds of prematurity together, but now a differentiation is made between:

1. *Low birth weight*—that is, less than 5½ lb, or 2.5 kilograms.
2. *A short gestation period*—that is, less than 37 weeks.

3. *Light for dates*—that is, being disproportionately light bearing in mind the gestation period.

About six out of every 100 babies born in Great Britain will be premature. Although the causes of any of the three forms of prematurity are not fully understood it is known that any of them are more likely to occur among first-born children, in lower socio-economic classes, to small women and in multiple births.

Any premature baby is at risk, especially from brain damage, during the birth process and when there is difficulty in establishing respiration. However, developmental patterns are the same as for those born to full term and although they may lag for the first five or six months there can be a more or less complete catch-up by the age of 24 months, providing there have been no other complications. In general, the lower the birth weight the greater the vulnerability. The 'no other complications' is an important qualification since premature births occur more frequently among the less advantaged; hence the generalisation that pre-maturity is associated with intellectual retardation among other factors.

Postmaturity

Postmaturity is now far less common than in the past since it is possible to examine the foetus to check its growth rate. The greatest risk to the postmature child is brain damage (see below) and studies of the later development of postmature infants have indicated that there is a greater than average risk of learning and behavioural problems among this group.

Brain Damage

This is an emotive term which many psychologists are, quite properly, wary of using. Nevertheless, it must be admitted that there is a risk of damage to the brain at birth from two main causes. The first is that there may be *undue pressure on the foetal head.* Inevitably there will be some pressure as the head passes down the birth canal, but if extra pressure is exerted—for example, if the baby is postmature and so has a proportionately large head—then damage is possible. The second is from *anoxia*, or lack of oxygen to the brain. Damage may be permanent or temporary depending on the length of time during which the oxygen supply is reduced: 18 seconds is long enough to cause very serious effects.

The effects of brain damage do not reveal themselves in any one pattern of behaviour, a point which makes it all too easy to invoke brain damage to explain many subsequent problems of childhood. There is no doubt, though, that an increased investment of medical care around the time of birth is likely to pay off in terms of healthier children in general and a lower rate of the severely brain damaged in particular. Here, perhaps, is one point at which the cycle of deprivation may be broken.

The Effects of Analgesic Drugs and Anaesthetics given in Childbirth

It is known that up to 95 per cent of women in Britain are given some kind of analgesic drug or anaesthetic during childbirth. It is also known that drugs given to a pregnant woman can pass via the placenta to the baby. Unfortunately our knowledge stops there for we are far from clear in our understanding of the effects on the baby of coming into the world with drugs in the blood stream. Research has been attempted, but with no conclusive results. Possibly sucking is affected, possibly the newborn is less responsive to sound, possibly any effect passes rapidly and is of little long-term consequence.

Postnatal Depression and other Psychological Factors

There is often a sense of anticlimax after any major event and childbirth is no exception to this rule. Women may feel that they never want to have another baby, do not much like the one they have and are no longer attractive. The depression is made worse by the fact that childbirth leaves one physically weak, yet almost immediately one may be responsible for caring for this new creature, who is, as one commentator put it, far from an ideal room-mate. If the depression passes within a few weeks, as is often the case, it is unlikely that there will be permanent effects on the rest of the family.

Little has been written about the fears or other emotions of *fathers*: little is known. Some play an active part in all stages of the pregnancy and assist at the birth; others wish to have little part in the whole business. Many men have little love for the newcomer and wonder if there is such a thing as paternal instinct. For that matter many women seem to care little for their baby until they can actually see and hold it.

More is known about the effect of a pregnancy and birth on the *relationship between the parents*. At one extreme is the happily married couple whose emotional, physical and financial state make the child wanted before conception and welcome at birth. At the other extreme is the unstable, unmarried, sickly woman, whose pregnancy brings the departure of her man and a rift with her family.

So far the problems surrounding birth have all been seen in terms either of the adult's or of the child's physical state; there are, however, a good many theories about the *newborn's psychological state* as well. One theory concerns what many psychologists see as a rather far-fetched idea, that of the *birth trauma*. For nine months, it is argued, the baby has grown in an even temperature, nourished with no effort on his part, having no demands made on him, being able to exercise when necessary. Then, suddenly, he is precipitated into a world of confusion, cold and a sudden bombardment of light, sound and touch. No wonder the newborn baby cries out—he is not just filling his lungs with air, he is expressing the anguish he feels at leaving the Garden of Eden. The philosopher Kant described this yell as 'a cry of wrath at the catastrophe of birth'. Observes with rather harder views question whether the baby's neural apparatus is sufficiently well developed for such emotions to be felt and argue that the first movements down the birth canal indicate an actual desire to be out in the world.

Bonding

The establishement of a relationship between the mother and baby marks the point of transition from birth to the world.

The Newborn Child

How can we describe the world of the newborn child? In the nineteenth century William James tried to get inside this world and in so doing produced a phrase that was, if nothing else, memorable. The neonate's world is, he said, one of *booming, buzzing confusion.*

Arthur Jersild took rather longer when he attempted to list what the neonate does: 'He sucks, swallows, excretes, defecates, vomits, salivates, hiccoughs, sneezes, yawns, stretches, kicks, waves arms and legs, trembles, shivers, turns his head, grimaces, moves his eyes, blinks, grunts and sighs.'

Elizabeth Hurlock has taken a rather more prosaic but potentially more fruitful approach in describing the newborn under three main headings: appearance, helplessness and individuality.

Appearance

The average weight of babies has been noted above and bodily proportions are shown in Fig. 8.1. There it can be seen that the head is about a quarter of the entire body length, compared to the tenth proportion of the average adult. The biggest difference is the cranial region—that is, the area above the eyes. In the infant the ratio between the cranium and the face is 8:1; by adulthood this has changed to 1:2.

White babies typically have blue-grey eyes while non-white babies' eyes are brown. Gradually eye colour changes to whatever it will ultimately be. The eyes are almost mature in size (the extent to which the visual system functions will be discussed below). Hair colour, if there is any to have colour, signifies little for it may be replaced by some of a different colour and texture.

Helplessness

Humans have a longer period of childhood than any other mammal; some say ruefully that in some case it lasts for twenty years or so. The extreme helplessness of the newborn is evident in five ways:

1. *An inability to maintain homeostasis.* Adults and older children have a well developed regulatory mechanism, rather like the thermostat system of central heating, which enables them to maintain a relatively stable level of temperature and chemical composition within the body. Prenatally the mother maintained homeostasis for the foetus but the newborn's central nervous system is not sufficiently developed to allow the baby to take over at once. An example of variation is the base pulse rate, which in adults is about 70 per minute. The neonate's pulse will swing from 130 to 150 at birth, dropping to just under 120 a few days later.

   The most marked example of lack of homeostasis of found in the baby's sleep. The nowborn will be awake for only about 8 hours a day but the 16 hours' sleeping will occur in fitful patterns, which may take two or three months to settle into a routine whereby most of the sleep occurs at night.

2. *An inability to control motor activity.* Full control implies voluntary activity—that is, bodily movement occurs only after a conscious wish. Babies move everything in all directions.

   But not all movement even at this age is random. Babies vary one from another in both their mass activity (i.e. movement of the whole body in response to a stimulation) and specific activity (for example, hand-mouth contact). There are observable patterns during the day as well, the quietest period generally being about noon.

3. *An inability to communicate.* This is an area of some possible controversy. There is no question of a baby pointing or indicating needs physically but they do cry and to some this is a form of communication. The 'birth cry' is reflexive, a result of air being drawn over the vocal cords. But from the first 24 hours onwards crying will occur at a time when the baby is hungry or appears to be in some discomfort. Mothers soon learn to recoginse their own baby and may even interpret what the cries mean.

   Another type of sound occurring at this time is often ignored, although it is potentially of the utmost significance. This is the explosive sound: the whimpering, cooing and gurgling

which usually come when the baby is contented. Their significance lies in the fact that these sounds strengthen as the baby gets older and become babbies, in turn becoming speech.

4. *An undeveloped state of the sense organs.* Older texts state categorically that the newborn baby cannot see. Recent research has shown not only that this is wrong but also that a baby of even a few weeks old or younger is probably capable of using sensory apparatus to a far greater extent than was hitherto imagined.

   The general picture seems to be that all sensory organs are ready to function at birth although some are more highly developed than others.

   Vision is the sensory system on which some of the most recent work has been done, notably by *Robert Fantz* in America and *Tom Bower* in Britain. Physiologically the cones in the retina are poorly developed, suggesting that neonates are colour blind. Although the rods are better developed their area is limited, which suggests a restriction of the visual field. The muscles controlling eye movements are undeveloped and so both eyes do not focus on the same object.

   But a newborn baby will react to light, turning apparently to search for it; within a few hours of birth babies have been observed to sustain gaze despite poor focusing skills. (The ideal focal distance at this time is about 8 inches, the distance between a baby's face and that of a feeding mother). Within the first few weeks many babies follow a moving object visually. There is no doubt that the ability to see and distinguish some visual patterns is very much greater than was imagined twenty or more years ago.

   Smell is the least important sense for humans but it is well developed at birth as is demonstrated by head-turning away from unpleasant stimuli.

   Taste cells on the tongue are not only well developed at birth but they are also as numerous as they will be later. Supplemented by smell, the sense of taste probably operates from the beginning; the baby presented with an unpleasant tasting stimulus, something bitter or salty, will cry and squirm.

   Touch. The sensory system is differentially developed at birth: sensitivity to cold is greater than that to heat; sensitivity to touch and pressure are greater in the region of the face than the trunk, thighs and arms. Sensitivity to pain may be affected by medication given to the mother during labour (see above).

   Hearing. Despite some evidence to suggest that the foetus can hear in the later stages of development, hearing is recognised as the least well developed of all the senses at birth. The newborn cannot easily hear partly because the middle ear is stopped with amniotic fluid. Nevertheless, at least one study has suggested that a baby has turned to sound within a few minutes of birth.

   Less certain than the assumption that the foetus can hear is whether or not the foetus or the neonate can distinguish tones. It seems likely from observations of babies from birth to 21 days of age that not all do. It has also been observed that low-frequency sounds seems more effective than high in soothing a crying baby.

5. *An inability to learn.* Here again there is no general agreement. Some authorities argue that even the simplest form of conditioning is too complex for the neonate. Others suggest not only that learning of a sort begins from the moment of contact with the mother's skin but also that it is possible to condition a baby *in utero.*

Individuality

Even identical twins show some individuality. Despite their relatively restricted behavioural repertorie, all babies have their own ways of movement, of feeding, of crying and of sleeping. The critical point here is that this variation implies that one should be very wary indeed before concluding that a neonate is doing anything unduly abnormal.

9

The Body Develops

Note that while the overall principles of growth can be seen to relate to all children, the figures quoted in the first part of this chapter refer to those who live in the Western world and are derived largely from data available on British children.

Height

Some parents, and some children, seem obsessed by height gain. Every few months the child is placed against a wall and the height is recorded, there being an unspoken message that to be tall is in every way superior to being short. The psychological reasons for this view are not difficult to understand.

There are two reasonably reliable ways of estimating final height. One is to multiply the neonate's birth length by 3½; the other is to double the height reached on the child's third birthday. The existence of these formulae suggests that there is little that an individual can do to affect height—unlike weight which is, to a much greater extent, under personal control. Growth in height is governed by secretions of a growth hormone from the thyroid gland and few people can directly control that mechanism.

Changes in height can be observed from three points of view: overall size, variations in the proportions of the body and changes in height relative to weight.

As can be seen from Fig. 9.1(a), overall height does not progress in a linear fashion. There is a period of relatively rapid growth for the first three years, then a time of slowing down, followed by a spurt as adolescence approaches.

Proportions vary with age: at birth the head is about a quarter of the body, by the third birthday it is still about a fifth but by adulthood the ratio has diminished to about an eighth. Readers who refer will notice that this gradual change in ratio follows the *cephalocaudal law* mentioned there.

Weight

Generally, as Fig. 9.1 indicates, there is a consistent relationship between height and weight. In many western countries, though, this balance is not maintained and obesity becomes a severe problem in a proportion of children.

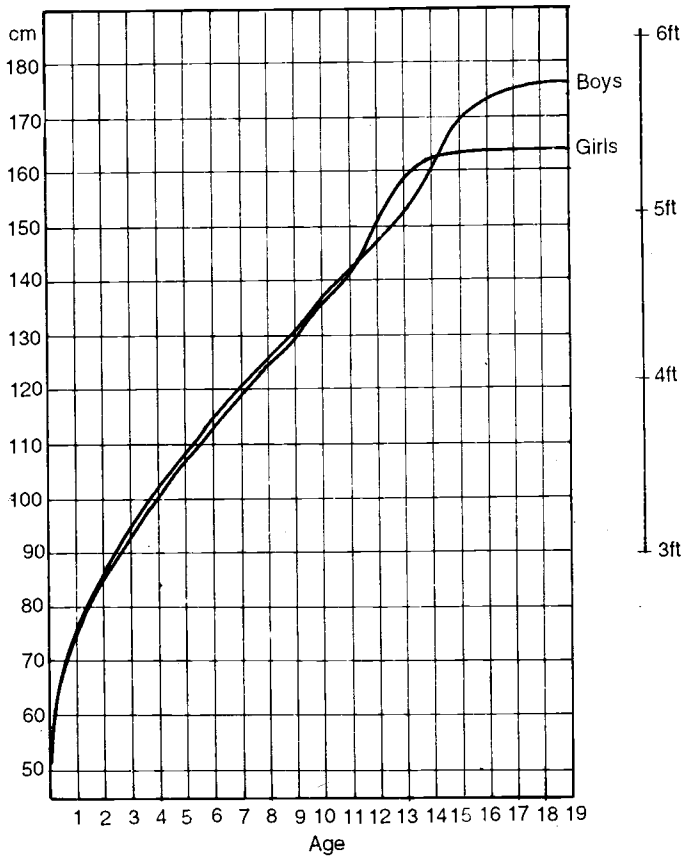


Fig 9.1 (a) Weight Chart.

From J. M. Tanner, R. H. Whitehouse and M. Takaishi, Archives of Disease in Childhood (1966).

As with height, there is a degree of variability in weight gain, with a flattening of the growth curve after the first year of so. It is just as well that this curve does flatten: if one continued to put on weight during the whole of one's childhood at the same rate that one does in the first year of life, a baby born weighing 7 lb. would, at maturity, weigh 562 tonnes!

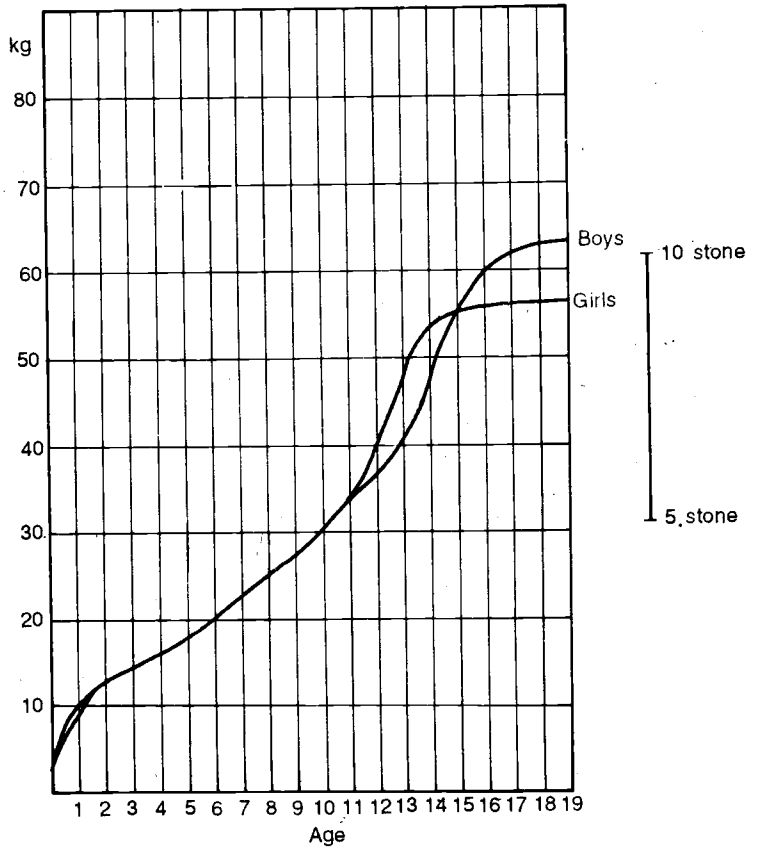
Types of Body Build

It is possible, following the work of W.S. Sheldon, to group humans into three body types:

Ectomorphs—long and slender.

Endomorphs—round and fat.

Mesomorphs—heavy, hard and more rectangular in shape.



(b) Weight chart.

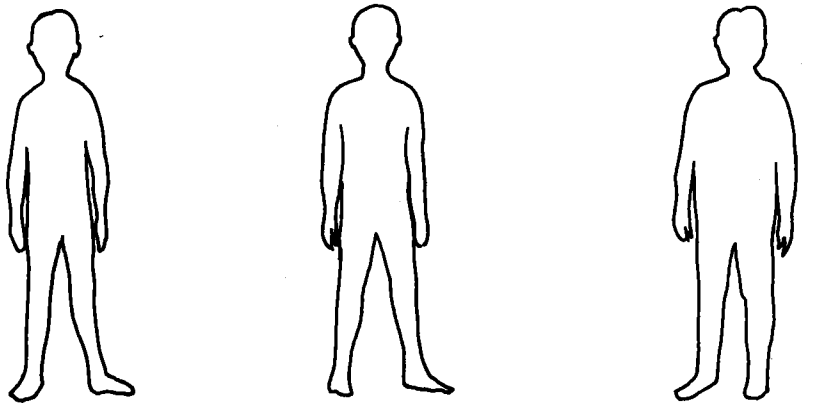
Few people are totally in one or another of these categories but most can be more or less assigned to one. There has been much speculation on the relationship between body type and personality.

Factors Related to Height and Weight Gain

The following are general statements, based mainly on large-scale surveys—individual differences will always be observed:

Sex differences are clearly observable in any mixed school: boys tending to be taller and heavier than girls. Before puberty there is, however, little difference in body build although as puberty approaches boys move somewhat in the direction of mesomorphy.

Racial differences are again apparent from observation. As well as differences in height there are some variations in body build, negro children in America having relatively shorter trunks, more slender hips and longer limbs than their white counterparts.



Ectomorph *Mesomorph* *Endomorph*

Fig. 9.2 Types of body build

Prenatal influences can, to some extent, alter the height and weight of a child that would be predicted on genetic grounds. Mothers who are malnourished, or who smoke heavily during pregnancy, tend to have shorter children.

Breast-fed babies are less likely to become fat, since the composition of breast milk changes throughout the feed, with proportionately more lipids and protein towards the end. This enables a baby to monitor the feed in a way that a bottle-fed baby cannot.

Babies who are heavy at birth tend to grow faster, and have their growth spurt earlier.

Singletons grow faster than twins or other multiple births.

Placid children put on weight at a faster rate than those who are tense.

Persistent emotional tension has been associated with a failure to gain height. The argument is that tension in sufficient quantity causes an overproduction of adrenal steroids which inhibit the production of growth hormone. Emotional factors can play a part in both obesity and severe weight loss.

Nutrition plays a crucial part in determining whether or not a child reaches the potential height and weight that his genetic endowment offers. Closely related to nutrition are *socioeconomic status* and *intelligence.* The general pattern is that better-off children and both taller and score higher on intelligence tests. They are also usually better fed as well, and one must not fall into the trap of confusing an association with a causal relationship.

Psychological Consequences of Unusual Height, Weight or Body Build

Every culture has its ideals. In Great Britain and America to be slim is to be beautiful, in contrast to some other countries where to be thin is to be pitied. Most societies value height, for boys if not for

girls, but this is not universal: the anthropologist Colin Turnbull is about six feet tall and was viewed by a Pygmy tribe as a freak.

Psychological consequence of any variation from the norm, or from the ideal, can be viewed from two points of view: the *self-image* of the child and the set of *expectations* that are aroused by the child in society.

The child's self-image is derived from the ways he interprets what others feel about him. Thus a child who is abnormally short may feel that others are constantly and literally looking down on him. How this affects his self-image will depend to a large extent on the way he has perceived his immediate family to see him. Irving Goffman has referred to families of unusual children bringing them up in 'a protective capsule', insulating them from the world's slings and arrows for the first, vital few years. If this stage can be accomplished successfully the effects of an unusual appearance can be mitigated.

Adult's expectations of children are governed by many factors, physical size being one of them. The small, thin child may be eight years old but if he looks like a five-year-old he will be treated accordingly.

Weight gain is a result of changes in bone, muscle and fat. At birth muscle fibres are present but undeveloped. They grow in length and thickness in two main spurts, from about five to six years of age and again at puberty. The amount of fat, or adipose tissue, possessed by any individual depends partly on heredity, partly on body build and partly on eating habits. It is possible that there are critical periods when a too rapid development of fat cells can have a greater effect than is apparent at other times. These critical periods have been seen as the first two to three years and the time approximately between 11 and 13 years. Having said that, it must be noted that any overeating in childhood leading to excessive fat is likely to be extremely difficult to counteract in adult life.

Teeth

The last permanent teeth a person has, the so-called 'wisdom' teeth, reach their full size in the person's early 20s; until then dentition is continuous.

The first, 'milk' teeth are normally cut from between the sixth and eights month, but much depends on health, heredity and nutrition. By nine months the average baby has three teeth; by 2½ years most have all 20 baby teeth. Between six and eight years children lose their first teeth and by the age of 10 most can expect to have about 15 permanent teeth.

The *physical and psychological implications of dentition* are often overlooked in studies of child development. The tooth faily is seen as a pleasing fancy and that is that. Yet the appearance of the first teeth can be associated with many powerful other factors in the young child's life. They come at a period of already heightened emotion. Parents may make allowances for a child who is teething but they may not realise that teeth can hurt at any time and young children, or those who are retarded, are not always good at pointing out that they have toothache.

The shedding of baby teeth is one of the *rites de passage*, a marker that one stage in life is passing. Babyhood is being left behind in all sorts of ways at the age of six or seven, for it is by this age that most children are reading and grappling with number concepts, or at least beginning to do so.

Another marker of change can be the orthodontic brace, a status symbol for some children in some societies. On the other hand, crooked teeth can lead to teasing—the area around the mouth seems to be psychologically vulnerable. If a child is already very tall, thin, short or fat then having unusual teeth as well is likely to exacerbate problems already present.

Finally, there is a further example of interdependence: poorly aligned teeth can lead to poor speech. An absence of baby teeth can result in the child lisping and bad habits established at this time can persist. Badly positioned permanent teeth can also affect speech and that in turn can affect the way a person sees himself and so on.

A couple of badly aligned teeth may seem of little importance to someone new to the study of child development; to anyone who has watched children grow it is clear that the apparently insignificant aspects of a child's life often determine far more than one would imagine, and teeth are no exception to this rule.

10

Basic Factors in Development of Child

1. The Child as an Organism

The child is a living growing organism. He grows in a family which belongs to a group. Thus the child starts with a biological foundation and grows up in a social environment. Every organism is a product of its unique experiences interacting with its own unique genetic endowment. Since the child lives and grows in a social context, the people in his environment, particularly the parents and other members of the family earlier and the teacher and the fellow pupils in the school later, are very significant in determining the way in which the child develops. As a biological organism the child is influenced by pains and pleasures which are common to all organisms. But as a member of the society he is also influenced by rewards and punishments given by people among whom he grows and by their approval and disapproval.

The child is not only a growing organism he is also a learning organism. His growth depends upon the biological basis. His learning depends upon the perceptual and conceptual processes, which have also biological basis in the nervous system. Learning is the most basic process because human feelings, actions and values are acquired over a lifetime. Much early learning takes place at home as the child is being socialized; other learnings take place in a more formal way when a child is educated in the school system. The purpose of socialization and education is to instil the appropriate feelings, behaviours and values of the group in which he lives. Today there are also the mass media, namely, the cinema, the radio, the television and newspapers and periodicals which also expose him to many situations and themes which are unique to his own group and also of the various other social groups throughout the world.

Three Aspects of Development

In a broad way distinction may be made with respect to three aspects of development. The individual in his maturity is not only the product of his own history or *ontogeny*, but also the product of the development of the species or *phylogeny* on the one hand, and of the *cultural and social evolution* of the group to which he belongs, on the other.

Evalutionary approach. The evolutionary approach assumes a continuity between all forms of life, from the least to the most complex. In other words, man is an animal. In his basic physical characteristics

man is similar to his immediate animal relatives. His neuro-muscular structure and physiological processes have much in common not only with the higher vertebrates but also with the basic structures and processes among the invertebrates organisms. The embryological processes of development are essentially the same for all vertebrates. In fact at certain stages of the development of the embryo it is difficult to distinguish the fish and the human structures. Similarly the mechanisms of reproduction and of genetic transmission are similar between man and the vertebrates.

Cultural approach. On the other hand, the cultural approach points to a number of facts regarding cultural transmission. Archaeological investigations show how many aspects of Indus Valley culture survive in Indian culture even today. The orthodox Hindus even today show many of the cultural traits of the Vedic times. There is no doubt that just as there is biological continuity, there is also cultural continuity. It is true that cultural evolution is more subject to various types of influences than biological evolution. Further, biologically there are no fundamental and significant differences between the various human races; but the cultural differences are profound.

However, it must be borne in mind that human physiological development is gene-determined. Studies have demonstrated that anything other than radical changes in the environment have little or no effect on the development of the body. Similarly studies have also shown that most human beings go through similar stages in the development of their personalities, irrespective of the culture in which they grow up. Studies have also shown that most attempts to accelerate or retard these stages meet with little or no success. Thus both the biological and psychological factors suggest that the *potentialities* of the individual are determined at conception.

The important problem, from the point of view of the student of human development is whether the fundamental biological similarities are more significant or the cultural differences. We will revert to this problem in a later section of this chapter when we consider the "nature-nurture" problem.

Before proceeding to a consideration of genetics of behaviour and maturation of behaviour, an attempt may be made to explain the two terms, namely, *growth* and *development.* Often these two terms are used interchangeably. Though they are inseparable, the difference between the two terms may be noted. The term growth refers more to *quantitative* changes—increases in size and structure while the term development refers more to *qualitative* changes. Development is a more complex process indicating the direction as well as the complexity in the integration of many structures and functions.

2. Heredity

It is self-evident that like begets like. The paddy seed gives rise to the paddy plant; the dog gives birth to a puppy. But beyond this, obvious fact, it is also known that within each species there are variations in colour, height, cleverness, ferocity, etc. For example, there are all kinds of variations in size, shape, ferocity, etc., among the dogs. These facts also indicate how man has been trying from times immemorial to improve the quality of plants and animals by experimental breeding based on the laws of heredity.

Chromosomes and Genes

Every human being starts life as a single cell, the fertilised ovum. The sperm cell of the male penetrates the ovum (egg) of the female and thus fertilises it. Each normal male and female cell has 46 or 23 pairs of chromosomes. The chromosomes are threadlike bodies. Located at specific positions in

the chromosomes are the *genes* which are the ture units of heredity. The genes always work in pairs and are located at corresponding positions on the chromosome pairs, one half of which, namely 23, are inherited from the father and the other half are inherited from the mother. Thus the parents transmit their genes to their children through the germ cells and the offspring, in their turn, pass on these genes to their progeny. This genetic inheritance determines in a large part the physical sturcture and behavioural potentialities of human organisms. Aspects of physical structure like height, skin colour, facial features, etc., are determined by the genes. However, with respect to behaviour, the genes do not determine actual behaviour since behaviour is greatly modifiable by upbringing, learning, and by aspirations; it can be said that the genes may determine only potentialities like intelligence, temperament etc., and not the actual behaviour patterns.

Each individual carries thousands of genes. These genes work in pairs. In some cases one gene is dominant and the other is recessive. Since genes are acquired from parents, the child is more like the parent genetically than like people in general. However, many characteristics which are recessive in both parents, and therefore not visible in them, may turn up in the child. This is one reason why children do not always resemble their parents as closely as might be expected.

It is a matter of chance, therefore, which chromosomes and which set of genes will take part in the formation of a new individual. With 23 chromosomes and thousands of genes in each human reproductive cell (gamete), the permutations and combinations are endless. As a result, each human being is unique.

Thus the resemblances as well as the differences between parents and children and between the children of the same parents are due to the transmission of genes from one generation to another. In other words, heredity determines resemblances as well as differences between parents and children.

As noted above by selective breeding of plants and animals, man has been able to develop new strains with the desired characteristics. Is it possible to develop new breeds with certain behaviour characteristics? Much of our present knolwedge in behaviour genetics derives from laboratory studies on animal populations. In 1942, Tryon published the results of his studies regarding the genetic basis of maze-learning performance in rats. He started with an unselected population of rats which showed wide variation in maze-learning. He mated fast-learning or bright rats with one another, and slow-learning or dull rats with one another, generation after generation. After eight generations of selective breeding, he found that there was hardly any overlap between the fast group and the slow group. They became virtually two distinct groups. These resutls indicate that maze-learning ability is a heritable trait, probably related to a large number of genes. Similar studies have shown that strains of rats differ in aggressivenss, hoarding activity, exploratory behaviour, sex drive and such other traits.

As to human beings our information with respect to heredity regarding behaviour characteristics is incomplete. It is not possible to inbreed human stocks until they are homozygous (each pair of genes becoming identical) for most characters before crossing them to determine the mode of inheritance of a single character. As a result the study of the genetic basis of human traits has depended on refined statistical analysis of geneological lines. A few instances in which the information is fairly reliabe are given below.

Inheritance of Physical Characteristics

As far as some physical characteristics are concerned there is evidence that some traits are inherited.

When both the parents are blue-eyed, it is found that the children are also blue-eyed; but when both the parents are brown-eyed, most of the children are brown-eyed with one or two being blue-eyed. This shows that brown-eye is a dominant character and blue-eye a recessive character. In other words, blue is recessive to brown. The colour of the skin plainly rests on a number of genes. Most races of men have some brown pigment to a greater or less degree. When a Negro marries a white, the children will be of the intermediate colour; that is, there is a blended inheritance. The colour of the hair is also inherited. Night blindness is also generally inherited.

Mental Characteristics

But when we trun to mental characteristics our knowledge is much less. It has been recently found that "mongolism" accompanied by mental retardation is associated with a chromosome count of 47 as against the normal 46. But not all cases of mental retardation can be attributed to heredity. There has been a controversy since a long time whether intelligence is an inherited character. This will be dealt with later. Similarly attempts have been made to show by family history studies that musical ability and artistic ability are inherited. But such attempts ignore the obvious fact that the children in such families have been brought up in a musical or artistic environment.

3. Growth and Maturation

Growth is a sign of life. The newborn infant is born with certain characteristics and capacities. However, it is difficult to determine whether these characteristics are a result of hereditary influences or are due to influences in the environment at the time of the development of the foetus in the mother's womb or due to influences at the time of birth. While some cases of mental retardation are due to hereditary factors, studies of maternal nutrition during pregnancy suggest that many instances of mild mental retardation are due to maternal malnutrition and inadequate prenatal care. This is the reason why in recent years the WHO, CARE, UNICEF and such organisations have developed programmes to provide good nutrition to expectant mothers. Thus the factors affecting the prenatal growth, or growth before birth, and postnatal growth, or growth after birth, are of great importance in the study of behaviour and its development.

Some Principles of Development

After the egg is fertilised, it starts growing. With growth the cell divides. This division continues as cells grow and split until a ball—like cluster of cells emerge. At this stage the cells begin to separate into layers according to their position in the cluster.

The outer layer, the *ectoderm*, becomes, for the most part the sense organs and nervous system. The middle layer, the *mesoderm*, is the primary source of the skeleton and the muscles. The inner layer, the *endoderm* develops into the viscera, the internal organs and the glands.

With the formation of these three layers, specialised development takes place and the new organism emerges.

Certain sequences of development take place in certain directions, in reference to the body. Development advances faster in the head region than in the tail region of the embryo. This is called *cephalocaudal* course of development, that is, development from head to tail. Secondly, development advances faster is the central areas than in the peripheral areas. This is called the *proximodistal* course,

that is, development from the central to the pripheral areas.

Like all animals, the child grows a relatively large, complex, head region early in life, whereas the tail region is small and simple. As the embryo grows, the region next to the head grows more and finally the end region grows.

Even after birth, the coordination follows the same sequence. The muscles of the eye come under control first, the muscles of the neck development, than arms, chest and back, and finally the legs. This will become clear when we study motor development in the next chapter.

The motor sequence also illustrates the proximodistal principle. The earliest controlled movements are the arm movements controlled mostly by the muscles of the shoulder. Later the elbow is brought into play in reaching, then the wrist muscles and finally the fingers.

A third principle of movement is from mass movement to specific movement. In the embryo and later, in the newborn infant, many of the early behaviours are massive in approach. The whole body moves. With further growth the movements become more and more specific and fine. When the neonate cries, it is as if he cries with the whole body including the face, the arms and the legs.

Motor Behaviour and Development

The newborn baby, the neonate, has many action patterns ready for use. Some of them require only appropriate environment to emerge. Some are perfected only after some practice. Still others require time for maturation. This will become clear when we discuss the relation between maturation and learning.

Behaviour patterns that are well-integrated and which are elicited by a specific stimulus are called *reflexes*. Some reflexes are protective like blinking, withdrawing from pain stimuli and shivering.

Breathing beigns at birth since adequate oxygen supply is vital to the preservation of life. Although respiration is a reflex activity, it is not necessarily stabilized in rhythm at birth. In a few days it reaches efficiency.

The baby is ready at birth to find his food, take it into his mouth and swallow it. When touched on his cheek, he opens his mouth and moves his head toward the source of the touch. These movements are useful for finding the nipple. When the nipple is grasped there is the sucking reflex.

One of the most important responses shown by the newborn is called *Moro reflex*. When there is a sudden change in head position, he throws his arms out to the side and then brings them back, as if he were embracing someone. Any sudden change in stimulation, like hitting the sides of the pillow, elicits the Moro reflex. It vanishes when the infant is three or four months of age. By six months it is difficult to elicit it. Reflex behaviour is largely controlled by the processes in the brain stem, which contains the centres responsible for the basic biological functions like breathing and circulation as well as the reflexes. While the infant's behaviour is largely based on the brain stem in the first two or three months, gradually it is controlled by the cerebral cortex which is largely responsible for perception, memory and thought. The cerebral cortex may not be fully functional in the newborn. As the cortex gains control, it begins to inhibit the brain stem centres that are responsible for the Moro reflex. Hence its disappearance after about three months.

Sleep is a very important need of the organism. Without its nourishing restorative function, the

organism would die.

Long ago, the ancient Indians looked upon sleep as a state of consciousness, along with waking and dreaming—*the avasthatraya*, the three states.

Today, psychologists look upon sleep as behaviour. It is behaviour in which certain forms of waking behaviour are minimized or modified.

It is generally agreed that during sleep, irritability is decreased and reaction times, the interval between stimulus and response, are increased. Responses decrease as depth of sleep increases. But it is difficult to determine, in some intermediate stages, whether the infant is asleep or awake.

Observations of the neonates, that is, during the first week of life show that they spend about five-sixths of their time sleeping. Each period of sleep is about three hours in length. There are some six to seven sleep periods in twenty-four hours.

It is generally believed that we are relatively quiet and relaxed during normal sleep. However, observations show that there is much activity. This is why it is necessary to distinguish between various levels of sleep, ranging from a kind of twilight zone between waking and sleep to a very deep sleep.

During recent years, Dement and his associates have found that eye movements occur when the infant is sleeping and his bodily movements have ceased. It is possible to record the eye movements of the sleeper. As the infant or child is falling asleep there are rapid eye mvoements (REM). When the sleep becomes deep the eye movements are not rapid (NREM). They start becoming rapid again as he wakes up. Eye movements thus provide a more reliable means of distinguishing between active and quiescent phases of sleep than gross movements of the body. Studies have shown that infants (below two years of age) spend proportionately more time in REM sleep than children. Neonates (first week of life) spend more time in REM sleep than infants. It has been found that in neonates the REM sleep is about 60 per cent. It is reduced to about 40 per cent in the five-week old infants, to 30 per cent in three-year old children and about 20 per cent in young adults. In aged adults it is only about 15 per cent (Jersild *et al.*, 1975, p. 389).

Another interesting finding is that when there are rapid eye movements in a child or adult and he is awakened, most often he reports that he has had a dream. Though dreams are most likely to occur during REM phase of sleep in the grown-ups, it is not likely that the infants have any dreams during the REM phase.

Studies show that the behaviour of the neonate is organised into *states* which are quite orderly and fairly consistent. About 60 per cent of the neonate's day is spent in sleep with smooth and even breathing and with little movement of the body. Next there is the stage of irregular sleep with irregular breathing, movements of body and face, including rapid eye movements for about 13 per cent of the time. In the next, eight per cent of the time, the neonate is drowsy. In this state there is less activity than in irregular sleep but more activity than in regular sleep. About eight per cent of the time is spent in waking activity, when he is silent or whimpering. About five per cent of the time involves crying in which there is vocalizing and diffuse motor activity.

But in all these cases, it must be remembered that there is considerable variation from infant to infant. In fact, individual differences constitute one of the most significant facts of life.

Crying and soothing. Newborn infants cry more often than they do later on. As the period of being awake increases, crying decreases and other behaviours like vocalising, use of hand, social interaction, etc. increase.

The crying of the infant may be due to pain or hunger. When the child cries, the mother feeds the child if it is the feeding time or soothes the infant by picking him up, by cuddling, rocking, speaking etc.

Thus, crying and soothing refer to the interaction between the infant and the mother. We can consider these problems in chapter dealing with socialisation.

4. Maturation and Learning

Maturation is an orderly sequence of events determined by the growth of the neuro-muscular structure. Learning, on the other hand, is acquisition of new skills etc., due to environmental stimulation.

Often the question arises whether the development of the child is due to maturation, that is due to the growth of the neuro-muscular structure, or whether it is due to learning, that is due to the influence of the parents, the stimulation that is given by them, the equipment that is provided by them and the practice given to the child.

At the outset it must be realised that this is a very tricky question. No child ever grows up in a vaccum. All children grow up in the environment that is provided by the parents. It is needless to point out that the poor child in India may be brought up in a one-room mud hut whether it is in the village or in the slum in the metropolis. On the other hand, the child born to the rich parents has a wholly different atmosphere. It may have a huge room for itself in a large house which is constructed in a huge compound. Studies reported in the next chapter show that there is a noticeable difference in the rate of growth among the rural, industrial and urban children with respect to skills like jumping, climbing, tricycling, ball throwing, etc. It is obvious that there must be a tricycle in the house, or in the nursery school, for the child to learn tricycling. There must be a ball and there must be enough space for the child to learn throwing a ball; the parent must provide such equipment. Even more important, the parent must promote the development of the skill by stimulating the child to practice.

Training before Maturation

One recalls the story of an experiment that is said to have been conducted by Akbar, Emperor of India. It appears there was a controversy in his court whether God spoke in Arabic or Persian. It is said that Akbar, a very practical man, was tired of the controversy and wanted to settle, once and for all, the question by a practical expeirment. He asked his minister to gather a few newborn children and see that they are brought up in a room without any contact with human beings. They were to be properly nourished but nobody was to speak to them. It was found that though the children grew up will they could not speak any langauge at all. Thus he discovered that one has to learn even one's mother tongue. But all the attempts made to teach lanugage to an ape have yielded no results whatever since the ape does not have the vocal apparatus which the human child has. Thus language learning is due both to the neuro-muscular structure as well as to the environmental stimulation and practice.

Some studies regarding this problem have been made on rats as well as on children. For example, Hebb (1949) reported that the rats from an ordianry strain of laboratory species, reared at home as

'pets' performed in a significantly superior manner on a learning task as compared with the rats from the same strain which were reared in a normal laboratory environment. In the last few years there have been several studies to determine the effects of "enrichment" of environment and "deprivation". When the environment is rich and stimulating during the first five years of a child's life, his development proceeds in a rapid fashion. On the other hand, if the environment is poor and unstimulating there may be retardation in his growth. Studies have been made on identical twins who are born with the same heredity but who were separated early and brought up in different environments due to several reasons. The studies have shown that when the twins were separated before they were one year old there was a difference of five IQ points and when they were separated one year or later the differences between the twins averaged about ten IQ points. These studies show how differences in environment can lead to differences in test performance though the identical twins starts with the same heredity.

Long back Gesell (1929), the famous child psychologist of America, reported his study on identical twins. The experimental twin T was trained to climb stairs while the control twin C was given no such training. After T had learnt to climb stairs both twins were tested on staircase climbing ability. It was found that both were able to climb. Thus, the control twin C could climb as well as the trained twin T by merely growing older and becoming more developed, though he was not given any training whatever to climb stairs. Thus training given before the child has properly developed is a sheer waste. The child could do as well by merely growing up.

Another study was made by McGraw (1949) to find the effect of bladder training. Twin I was initiated into bladder training at the age of 30 days. The bladder training of twin C was started when he was 700 days old. Yet both the twins showed the same level of control when they were 800 days old, the time at which the experiment was stopped.

These and similar other studies have shown that with respect to skills such as walking, climbing, toilet control etc., early training is no value since these skills require a certain amount of maturation. Training has a value when the child has completed the growth necessary for the performance of that skill.

Concept of Readiness

These studies suggest that an age of readiness exists for the appearance of many kinds of behaviour and that before this age such a behaviour can be learned only with difficulty, if at all. This concept of readiness is used with respect to the academic skill of reading. It is obvious that reading skill is not like the walking skill or the climbing skill. It is not common to all children. Reading is a cultural acquisition. But it depends on the ability to discriminate symbols. This facility may be matrurational. According to Gates (1973) and others the age of readiness to read is 6–5 years. However, it is true that some children learn to read by the time they are four years old. It is also true that reading readiness is facilitated by books, newspapers and magazines at home and the advertisements in the urban areas. Still, by and large, children before the age of six need not be trained specifically to read. Of course, studies are needed here to determine what proportion of children, with what results for the future development, can be trained to read before they are six years old.

Summary

It is thus clear that several kinds of behaviour seem to result largely from genetically determined

patterns of growth rather than from learning. As a result the sequence in which such behaviours occur does not differ appreciably between children. Neither special training nor deprivation of experience, within fairly wide limits, appears to influence the development of such behaviours that are common to all human beings. But certain other kinds of behaviour are more dependent on learning than on maturation alone. If the learning opportunities are not there they cannot be developed.

5. Heredity and Environment

We have discussed so far the three main factors in human development, namely heredity, maturation and learning. It has been seen that heredity is a source of both similarities and differences among individuals and that the environment plays a very important part when the organism is grown, though growth is really predominantly biological. However, when we considered the problem of learning it was found that development is predominantly due to the environmental factors, though heredity does play a part here also since the success of learning depends on ability. The tricks which the elephant; the bull, the dog and the monkey can learn depend largely on the heredity factors. The mahout cannot teach the elephant the tricks which the dog-trainer or the monkey-trainer can teach the dog or the monkey.

Race and Caste

In this section an attempt may be made to discuss briefly a problem that is of profound importance in human society. During 18th century the British thinker Locke (1632-1704) and the French thinkers Voltaire (1694-1778) and Rousseau (1712-78) laid the foundations for modern liberal democracies by emphasising equality of man. However, during the 19th century the tremendous success of colonialism gave credence to the hereditarian notions that the people of western Europe are superior by race to colonial people in Asia and Africa. This ultimately led to the assumption of racial superiority by the Germans and the mass presecution of the Jews during the thirties of the 20th century culminating in the second World War.

The notions of racial superiority were also responsible to the segregation policies in South Africa and in the United States of America; the Negroes and other coloured people were treated as inferior human beings by race.

In India there has been a similar problem based on caste. The Sudras, the Harijans and the Girijans have been treated from times immemorial as inferior genetically to the *dvijas* (the twice-born people) and were denied education. Similalry even the women of the higher castes were denied education on the assumption that they are inferior to men.

The ideas of liberal democracy led to a new outlook in Indian society which culminated in the constitutional provision of equality irrespective of caste, creed, sex etc. But even today the ideas of caste inequality are generally widespread in the rural areas.

The question whether individual differences are due to heredity or due to environment has been a source of heated controversy in the history of psychology. Extreme positions were taken with respect to what was called "nature-nurture" controversy; some contended that the observed differences between human individuals and groups were largely, if not wholly, due to heredity and some others held that the observed differences were due to the differences in environment and upbringing. It is now generally

recognised that the heredity-environment question is a "pseudo-question" to which here is no meaningful answer. The hybrid-seeds give a very large yield; but they also require good soil, fertilisers and water. So it is obvious that good seeds by themselves cannot help to increase production of foodgrains unless the environmental requirements are also met. In other words, a child with great potentiality in intelligence or in talent cannot manifest them unless he lives; to live he must be fed and looked after properly. Thus, the question whether a trait is due to heredity or due to environment is completely meaningless, because without heredity there is no organism and without appropriate environment the organism cannot survive to display the trait.

However, attempts have been made, as in Indian caste system and the American and the South African race system, to prevent marriages between different cultural groups which are assumed to be genetically different. For example, in India marriage of persons belonging to different castes was invalid according to law till 1954. Though genetic considerations have no significance there is no doubt that marriage between two persons who are widely divergent in culture, upbringing and outlook may not be successful.

Neither race nor caste can be compared to pedigree in horses and dogs. Pedigree is the result of artificial selective breeding involving characteristics which are based on a few genes. Each pedigree has its own gene combination; but neither caste nor race are based on gene combinations. As noted in the previous section the gene combination in each human being is unique since it is based on thousands of genes. It is not possible to have selective breeding among human beings. The differences observed among different human groups are cultural and not genetic.

Differences in Group Norms of Intelligence

It is a well-established fact that the average IQ score of an American Negro is approximately 5 to 15 points below the average score of an American White. Sohan Lal (1948) reported that in Uttar Pradesh the average IQ for Brahmins was 100.2, for Kayasthas 101.5, for Kshatriyas 101.1, for Vaisyas 99.4 and for Sudras 95.4. He also found that while the average IQ for Hindus was 100.9, that for the Muslims was 99.2. With respect to prefessions he found 103.9 among the children of lawyers, medical men and teachers, while it was 100.9 among the children of clerical occupations, 96.5 among the children of businessmen and 99.0 among the children of cultivators. Bhatia (1955) used a performance test and found a significant difference irrespective of caste between the average of the illiterate boys of the age group 11-16 and the school going boys of the same age groups. Thus all these studies in India and abroad show two general results: (*a*) that there is a difference between the various caste and racial groups in average IQ; and (*b*) that there is also a similar difference between the children of the various occupational groups and between the children who are illiterate and those who go to school.

A crucial study in Mysore was reported by Varadachar (1954). In order to control as many conditions as possible he took up for study only children whose parents were unskilled workers with an annual income below Rs. 1000 and who were studying in the government schools, where education was free. He used Raven's progressive matrices to test children of three age groups—seven, eight and nine years old. He took up three groups of children: Brahmin, Harijan and others. He reported that there was no significant difference in average intelligence scores between the three groups. Thus when socio-economic conditions are kept constant, there was no indication of difference between the three caste groups.

Studies with Identical Twins

A brief description of the resutls of studies using another method may now be given. Since controlled breeding experiments are not possible among human beings, attempts have been made to study the differences between identical twins (monozygotic) and fraternal twins (dizygotic). The general assumption is that the identical twins, since they are formed by the splitting of one fertilised ovum, have different genetic constitution and that the fraternal twins have different genetic constitutions since they are born out of two different fertilised ova. In other words, it may be assumed that the observed differences between the identical twins reflect the influences of environmental factors (since the genetic constitution is the same) and that the observed differences between the fraternal twins reflect the combined effects of hereditary and environmental factors. Newman (1937) reported a coefficient of correlation of 0.88 between several pairs of identical twins and 0.67 between several pairs of fraternal twins. Newman also reported a correlation of 0.77 between pairs of identical twins who for some reasons were separated early in life and were brought up in separate homes. McNemar (1933) reported correlations of 0.79 between identical twins and 0.34 between fraternal twins regarding motor skills. Finally, reference may be made to the results of the study of Gottesman (1963) who found a correlation of 0.55 between identical twins and 0.08 between fraternal twins regarding extroversion-introversion temperament.

These results show that intelligence is clearly an innate factor, while motor skills and temperament are less so; further that intelligence is not affected by environmental factors as much as motor skills and temperament. In other words, to ask whether heredity or environment is more important is like asking whether length or breadth is more important in calculating the area of a rectangle. The really significant problem is to discover what environments permit optimum growth for individuals of all types of heredity (McCandless and Evans, 1973).

Influence of Enrichment of Environment in Early Childhood

Finally, attention may be drawn to the studies which report the influence of environmental factors on the growth of intelligence. Results have clearly shown that the IQ remains fairly constant after six years of age. Environmental changes after six years do not alter significantly scores on intelligence tests. Several studies report that environmental enrichment is of great significance in improving, within limits, the scores on intelligence tests among children below six years of age. In other words, it looks as if intelligence is more plastic at the earlier age and can be improved significantly by enriching the experiences of children. Results of recent studies in India clearly show that there are significant differences in the various aspects of child development between rural children and urban children and between the children of industrial workers and those coming from middle class homes. These results clearly indicate the influence of the environmental factors.

Another evidence of the influence of the enrichment of the environment could be seen in the result of the study made by Kirk (1962) with the mentally retarded children referred to be low. He showed how pre–school training tended to increase the developmental rate.

Intelligence is Innate but not Inherited

What, thus, is the present position regarding the influence of heredity and environment on behaviour? The investigation have shown that neither heredity by itself nor environment by itself can account for the development of behaviour. There is no evidence for the assumption that either caste, or class, or

race or sex each by itself affects the distribution of intelligence. In any population the genetic factors, depending as they do, on 23 pairs of chromosomes with about 100,000 genes, appear to ensure that in all groups intelligence is distributed according to the normal probability curve. In other words, there is no truth in the assumption that removal of restrictions on marriage will bring about a deterioration in the general level of any human group. Finally, studies have clearly shown the need for enrichment of environment and experience, particularly in the first five or six years of life in order to enable each child to develop to the full whatever potentialities he has. Though intelligence is *innate*, it is not *inherited.* It is not transmitted from the parents to the children like property and bank balance. But the parents and the state and society can do their best to provide the necessary nutrition and environment to enable each child in the country to grow to his utmost limit.

6. Stages of Development

Development can be described in different ways. The most common way of describing it is according to chronological age. A brief description of the several stages may now be given to show how children behave differently at successive ages. The outline will indicate how children learn new and more complex tasks as they grow older.

Prenatal Development

Prenatal development (conception to birth) refers to the development from conception to birth. Before birth, development is extremely rapid and it is mostly physiological. It consists of the growth of all the bodily structures. The individual grows from a single germ cell to an infant of approximately seven pounds in weight and about fifty cms. in length.

Neonate or the *newborn* (Birth to 2 weeks) refers to the period from birth to two weeks or so. At this stage the organism goes through a sensorimotor stage during which the purely biological organization is gradually changed into a biopsychological organisation through contacts with the world into which he is born.

Babyhood or *infancy* (2 weeks to 2 years) extends from the first month to two years. This is a very significant period. It marks the transition from purely reflexive function organism to a psychological individual. At first the baby is completely helpless and during the first six weeks he spends most of his time sleeping. When he is awake, however, he engages himself in active interaction with his environment; this interaction serves to stimulate his psychological and social development. Gradually he learns to control his muscles so that he can become increasingly self-reliant. It is in this period that the infant gains control over his hands, trunk and legs so that he can walk and run about, kick a ball, build a tower with cubes, gain control over bowel and bladder, learn to speak and acquire a vocabulary of more than 200 words. All the various emotions develop and temper tantrums start. Though he obeys limited commands and can feed himself, he also shows resentment against being "babied" and a growing desire to be independent. Thus, this is the period in which he gains control over his bodily movements and he learns to speak.

Early Childhood (2 years to 6 years)

This is the pre-school period; it may also be called the pre-gang age. In this stage the child seeks to gain control over his environment. He also starts to learn to make social adjustments. He learns to

use the pronouns "I", "me" and "you". He starts using short sentences and learns to explore and control the environment with language. He is negativistic between two and three years of age and resists parental demands, but gradually overcomes it. This is the age at which there is rigid insistence on the sameness of routine. Later he incessantly asks questions. He is able to become self-dependent on many routines of home life. In this period also he has imaginary friends with whom he converse. In the sixth year he becomes independent of his parents; he gets his permanent teeth. He knows over 2000 words and is able to relate stories.

Late Childhood (6 years to about 12 years)

Late childhood is the elementary school age. There is a major increase in size of the body after ten years of age. This is the period in which sexual maturity occurs and adolescence begins. Puberty occurs in girls between 11 and 13 years and in boys a little later 13 to 15 years. The major development in this stage is building up friendship with the peer group. There is keen interest in comic books and movies; also in television. This is the age in which social interactions become mature; there is planning and anticipation; there is renunciation of immediate personal gratification in order to preserve social interaction; as a result a good deal of frustration tolerance is developed.

Adolescence (12 to 18 years)

Two basic problems of adolescence are the development of identity and the growth of interest in the opposite sex. This is the period of physiological upheaval, of tremendous bodily, especially sexual maturation. It is also the period of intensified personal interactions with peers, of the same and opposite sex and with leader figures. While in early adolescence (12-14) same-sex friendships prevail, in later adolescence (15-18) there is increased heterosexual interest. Right through there is concern for personal appearance and the desire to make a good impression on others. They are highly self-conscious of their bodies. There are strong affiliative needs giving rise to close friendships. The peer group has greater influence now than the home. While in the childhood years, they permit themselves to be nurtured and directed by their parents, the new desire to seek identity leads not only to a desire for independence but also to strong resentment against the attempts of the parents to protect them. One of the keen desires at this period is to be emancipated from the control of parents. As regards intellectual growth, the final stage in the development of reasoning skills is reached in early adolescence; he is now capable of reasoning about events mentally without having to experience concretely the event he is thinking about. He is now capable of hypothetico–deductive and inductive reasoning. He tries to extend his knowledge by more extensive reading. This is the age at which he chooses an occupation or a course of studies which lead to an occupation. Finally, he seeks meaning in life and so to build up a sense of values. There is greater desire for freedom and self-direction.

7. Developmental Tasks

Havighurst (1953) defined a developmental task as that which arises "at about a certain period in the life of an individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by society, and difficulty with later tasks." The tasks listed by him are based on psychological, biological and cultural factors.

According to Havighurst, the main developmental tasks from birth to six years are: learning to

walk; learning to take solid foods; learning to talk; learning to control the elimination of body wastes; learning sex differences and sexual modesty; achieving physiological stability (a purely biological task); forming simple concepts of social and physical reality like man, animal, round etc; learning to relate oneself emotionally to parents, siblings and others; and learning to distinguish right and wrong and developing a conscience.

Between the ages of six and twelve years the major tasks are: learning physical skills for ordinary games; building wholesome attitudes toward oneself as a growing organism; learning to get along with age-mates; learning the appropriate masculine or feminine sex role; learning the fundamental skills in reading, writing, and calculating; developing concepts necessary for everyday living; developing conscience, morality and a scale of values; achieving personal independence and developing attitudes towards social groups and institutions.

During adolescence, the individual has to achieve a masculine or feminine social role; accept one's physique and use the body effectively; achieve emotional independence of parents and other adults; achieve assurance of economic independence by selecting and preparing for an occupation; prepare for marriage and family life; develop intellectual skills and concepts necessary for civic competence; achieve socially responsible behaviour; acquire a set of values and an ethical system as a guide to behaviour.

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11
The Developing Child

What is a Child ?

What is a child ? A thinking, feeling entity ? An organism shaped by parental constrictions? A possession of his or her family, of the government, or of him or herself ? A being in transit to adulthood? We see children as all of these, and more. We see children and their developmental needs as the fundamental building blocks of a human society. A society that does well by its children—and their parents—is basically sound (Bronfenbrenner, 1970). This theme runs through all our discussions. Our goal in this chapter is to outline some of the basic processes and events in child development. We will follow this with a discussion of parent-child relationships. In this chapter, however, we are most directly concerned with the child's own developmental agenda, albeit with a constant eye toward issues of social context. As ever, we are bringing to bear our ecological perspective.

Our theme in this chapter is the child as a developing, thinking, acting organism able to take initiatives to meet the challenges of the environment. We see children as resourceful and flexible, and we believe that challenge, *within limits*, is growth inducing. We will try in this chapter to outline some of these limits so that we will be in a better position to discuss how children use their resources in parent—child relations to meet developmentally appropriate challenges in their environments. This in turn will help us see how human services and social policy can and should work on behalf of children and families.

The way the child's society defines the child influences contemporary policy and practice, and this macrosystem effect has existed since the ancient geniuses Plato and Aristotle began their efforts to develop a systematic conceptualisation of human development. Their concern was to define the child in relation to family and society. Plato believed that most parents, imbued with the moral decadence of contemporary Athenian society, were unfit to raise their own children. Even parents who gave every appearance of being capable were still not up to the challenge of creating the caretakers of some future ideal state, because parenting techniques differed so widely that their separate influences would create a "medley of incongruities" in the character of the citizens. Therefore, all children were to be separated from their parents early in life, allowing the state to control child rearing and education. Plato struggled with the eternal issues of child rearing, most particularly with how to establish self-control in the child without destroying individuality and initiative. In any case, this notion of the state as arbiter of the

child's well-being and best interests has obviously stayed with us and remains in contemporary child custody and child abuse laws (Biehler, 1981). We will return to these legal implications later.

Aristotle was also devoted to the concept of the "ideal society". However, he opposed state control of child rearing because he believed it denied most citizens the right to essential individual liberties and denied the family the right to provide personal and social stability for the child. He judged that different parents using different child rearing techniques would not provide undersirable "incongruities," but rather positive individuality. Aristotle proposed a transfer of power from the state to the parent. Rather than being a possession of the state, the child would be a possession of his parents. Unfortunately, to the present day, the child often finds himself either at the mercy of one force or another, always a possession, rarely a trust. An abused child, if not taken under the wing of the state, is left to contend unaided with the abusive parent. The imbalance of power is too great. Nowhere is this more clearly seen than in the case of incest, where the child cannot give truly informed consent because the child is asked to make a judgment inappropriate for her or his age and is forced to do so in a coercive climate where all the power lies outside her or his real control (Finkelhor, 1979). This is, of course, even true in those *rare* instances where incest occurs in a climate of love and respect.

The Platonic and Aristotelian conceptions of childhood have influenced successive generations by focusing on the question: "Who owns the child?" Aries (1962) proposed that during the Middle Ages, this issue was resolved by downplaying the notion of childhood as a separate period of life. Thus, children were not thought to be qualitatively different from adults, only smaller. Artistic depiction of children represented them as little adults. The children one sees in the paintings of the time do not have the characteristic "look" of modern children. Children who survived the critical period of early childhood immediately became "adults" in the eyes of society and were treated as such—with its positive and negative implications. Working, playing, and loving were shared with the young. Given the conditions of life, this was understandable. Life expectancy was short; most work was simple.

The advent of the Renaissance and the Reformation, followed by the eighteenth century revolutions in America and France, brought about important economic, political, and social changes. The influence of the Church diminished, as did social stratification, and economic opportunities grew. Families increasingly saw children as investments in the future. Childhood became a separate part of life, and more people began to recognise that children have their own inner lives. Whereas earlier the hardest children had been sent to work or had been apprenticed, it became more and more common for children to go to school and prepare for careers (Gardner, 1978).

One of the attitudes toward children that underwent a most profound change was the shift from believing children to be wicked to viewing them as being innocent. "Expert opinion" believed children to be inherently sinful during the Middle Ages, and parents were advised to punish them often. Starting in the eighteenth century, however, a shift in attitude occurred. New religious forms stressed salvation and innocence. Baptism was believed to purify the soul. Child rearing began to be portrayed as a safeguard of the child's innocence. Debates as to the requirements of child education and child rearing became common as Western culture experienced significant liberalisation.

The philosophers John Locke and Jean Jacques Rousseau placed particular emphasis on the importance of early child rearing and child learning. Locke developed what has been identified and

handed down as the "environmental learning" view of child development. He envisioned the child's mind at birth as a "white paper" or blank slate ("tabula rasa") that provides form, but not content to the child as an individual. The knowledge that a child attains is learned through contact with the environment. Locke saw experience and observation as the sources of all ideas, yet he believed that children have personalities at birth that guide their responses. He also believed that parents should encourage the child's natural curiosity. He advocated the use of reinforcement rather than punishment in rearing and educating the child, techniques that have found their way into the theories of most contemporary psychologists, but still are resisted by some parents (Gardner, 1978).

Jean Jacques Rousseau believed in the inherent goodness of the young, but he believed this goodness was corrupted by the influences of society. His general message was that parents and teachers should fit education to the child, not force the child to learn what was beyond his or her natural grasp. If adults shield children from the negative aspects of society, their "natural goodness" would ensure that they make the right choices. Rousseau did not believe in the "perfectability" of human beings, as Locke did, but he suggested that education could "enhance" a child's desire to learn and develop. These ideas, too, have their contemporary counterparts (Biehler, 1981), although their philosophical character is foreign to much of contemporary scientific child development.

Certainly one of the environmental factors contributing to the past legal and cultural status of children was their relative physical vulnerability, given the poor sanitation and the inadequate health care characteristic of earlier eras. Children were not a good investment for the future, given their short life expectancy. As late as 1900, 55 per cent of the children born in London's slums died before the age of five (Gardner, 1978), and even the rich had to contend with substantial infant mortality. After the Industrial Revolution, industrial managers came to see children as the least expensive source of labour, and their instrumental value increased. Concern for children began to increase in the early nineteenth century, as the standard of living began to rise and as epidemics became more subject to control. A few medical practitioners began to specialise in childhood diseases.

Along with the growing interest in the child and the questions raised about how best to train and educate children, the 1800s saw the growth of the discipline of biology, which became concerned with the study of the development of organisms. It was natural to study the "child-as-organism." Early studies of child development were initiated by Charles Darwin in the form of "baby biographies," daily diaries that reported happenings in a child's physical, mental and emotional life.

The first person to conduct empirical research with children was G. Stanley Hall. Through the use of questionnaire data, he was able to develop an initial picture of how children viewed the world. Hall believed that human development proceeded in regular, ordered stages, one following the other, largely on the basis of internal cues. This approach was soon displaced, however, only to return to a position of prominence decades later.

Hall's theories, however, were based on environmental or mechanical learning theories of development. Learning theory emphasises environmental influences, is skeptical about a natural course of development, and believes in drill and training. Environmental learning theory sees development as proceeding continuously rather than in stages. This theory values concrete, behavioural measures designed to avoid factors that defy careful definition and measurement. How has the notion of "environmental

learning" come down to us in the present day?

The "environmental learning" concept was used first as the rationale for John Watson's work in child behaviour and development. Watson was inspired by the work of Pavlov in establishing a conditioned reflex in dogs. Combining Locke's ideas with Pavlov's techniques, he described a method whereby parents might shape the behaviour of their children. As Watson developed his early views on behaviourism, he applied these views to controlled observations of newborn infants. His studies concentrated on the physical stimulation of babies and investigation of their reactions. He also was able to demonstrate classical conditioning (learned pairing of a previously unconnected set of events or objects) in infants.

The case of Albert and the white rat is now a legend. Albert was a small child whom Watson introduced to a white rat in a laboratory setting. Albert enjoyed playing with this rat until Watson introduced the stimulus of hitting a steel bar with a hammer just as Albert reached for the rat. Soon, the presentation of anything white and fuzzy to Albert caused fear, even without the loud sound. The process was later reversed to "cure" the child of his phobia. Watson's success in the endeavor led him to claim that if he had "a dozen healthy infants" to bring up in a prescribed environment, he could mold their lives totally. This claim was undermined by the demonstration that conditioned learning applied only to essentially involuntary reflex actions, and that attempts to build sequences of conditioned responses were rarely successful. But the idea that one can make children into whatever one wants through managing stimuli and reinforcements persists (Biehler, 1981).

Watson's work has been expanded by B. F.. Skinner, who argues that every personality is the product of environmental experiences. He worked to condition voluntary responses, known as *operant conditioning*. Through control of voluntary responses, he proposed to shape sequences of behaviour. In his fictional utopia *Walden Two*, Skinner envisioned placing children in the hands of child-rearing specialists who condition undesirable traits out of the children's behaviour and desirable traits into it. Skinner recognizes that for behaviour control to be effective in real life, we all must dispose of the notion of free will, the idea that there is some mysterious factor beyond behaviour and reinforcement. To Skinner, "What a man does is the result of specifiable conditions, and once these conditions have been discovered, we can anticipate and determine his actions" (Biehler, 1981).

Albert Bandura is another proponent of environmental conditioning of human behaviour. However, he has modified the environmental learning viewpoint. To Bandura, reinforcement does not influence behaviour without the conscious involvement of the individual. Humans interpret stimuli and do not simply respond. From Bandura's perspective, human beings are capable of choosing how they will respond behaviourally to many situations—a phenomenon that he refers to as anticipatory control (Biehler, 1981). We can presume that this ability increases as the infant becomes the child, the adolescent, and then the adult. The concept of development presented sees this as standing at the heart of human experience.

Bandura provides a bridge from the strict environmental-learning approaches to those that emphasize the role of cognitive structures in human development. Two of the major pioneers in cognitive structural theories of development were Arnold Gesell and Abraham Maslow. Having observed that infants follow a uniform sequence of development, even in different environmental backgrounds, Gesell concluded

that development was controlled by innate tendencies and that children mature according to a built-in timetable that controls much of their behaviour. Children, therefore, are self-directed organisms that cannot be molded in the unlimited fashion envisioned by Watson and Skinner.

Maslow took the notion of cognitive structuralism and turned it into "self-determination." He concluded that each individual possesses an inner nature that determines behaviour. Maslow believed that parents do not have the responsibility of *shaping* the behaviour and growth of their child, but that they can make it possible for the child to follow an optimal course of development by optimising the environment. To Maslow, optimization of the environment means trusting the child and being supportive rather than interfering. Maslow believed that given freedom, the growing child will choose the best path. He argued that only when children feel comfortable, safe, loved, and accepted *do* they choose the best path.

Is a child a self-directed or an environmental-directed organism? The proceeding discussion indicates that both internal and external forces are important in child development, although exactly how these forces interact has not been definitely determined by science. As we will see, the controversy over what the child is and what controls the child's development provides a backdrop for policy issues (such as custody) and for other major theories we will discuss later in relation to processes of child development. If the history of childhood as a philosophical issue is important, the history of each human organism is miraculous.

How Does a Child Come About ?

A child is a miracle. From a microscopic speck containing the genetic equipment of the species comes an organism complete with individual variety. Before we move beyond the womb, we must understand the amazing drama that goes on within the womb (during the prenatal period), during birth and in the first few days afterward (the perinatal period), and in the months that follow (the postnatal period). The fine details of development during these and evolving periods are presented in Table 11.1. A brief overview is in order here.

An important question to keep in mind when reading this section is: When does life begin? This is a burning political and ethical issue that has divided scientists, theologians, and philosophers for centuries. Many answers are plausible on multiple grounds; conception and birth are not the only possible answers. This becomes clear as we proceed with our review of prenatal development.

Table 11.1 Developmental Events Timetable

Period	*Ages*	*Developmental Events*
(1)	*(2)*	*(3)*
Prenatal & Perinatal	8-10 weeks	*Physical*: Cell differentiation into those that will be bones, nerves, or other cells.
	2 months	*Physical*: Weight, 2/3 oz.; Length, 1½-2 inches. All organs present; leg buds and external genitalia just appearing.
	3-4 months	*Physical*; Weight, 7/8-4 ozs.; Length, 3-6 inches. If aborted, will make primitive breathing movements and suck; bones forming; differentiation of organs.

(1)	(2)	(3)
	5 months	*Physical*; Weight, 11 oz.; Length, 10 inches. Increased fetal movement.
	6-7 months	*Physical*; Weight, 20-40 ozs.; Length, 12-15 inches. Heartbeat clearly discernable; eyelids present.
	8-10 months	*Physical*: Weight, 4-7 lbs.; Length, 16-20 inches. All major changes have now occurred, development is matter of increasing weight and length.
Postnatal	0-2 years	*Physical/perceptual*: Development of prehension, early development of coordination and walking, rapid height and weight gain. Vision proceeds from focusing of eyes to interpretation of what is seen. Patterns differentiated, depth perception develops. *Cognitive/Language*: Language proceeds from crying, cooing, and babbling to first words and meanings. *Sensorimotor period*: Circular reactions, assimilation and accommodation, formation of the object concept, exploration, and beginnings of thought. *Social/Emotional*: Responses to fear, anger, and love develop over time; smiling develops as a social response; expanding social contacts.
	2-5 years	*Physical/Perceptual/Motor*: Slowdown in height and weight gain; recession and redistribution of "baby fat." Relationship develops between coordination/perception and cognition; walking improves; stabilisation of equilibrium; hopping, skipping, running, climbing stairs added to repertoire; child can copy (draw) figures, button clothes, tie shoes. *Cognitive/Language*: In language, two-word utterances become communications with application of schemes; gradual perfecting of grammar; development of egocentric speech and thought. *Preoperational thought patterns*: "one-track" thinking, conservation, improved memory, relationship between thought and communication begins; beginning of intuitive thought; beginnings of play, creativity and fantasy. *Socio-Emotional*: Continued interaction with parents; early socialization with peers; early moral development; acquisition of sex roles; pro-social and antisocial behaviours develop.

(1)	*(2)*	*(3)*
	6-12 years	*Physical/Motor*: Gains in weight and height; increased bone and muscle development; appearance and growth of sex characteristics.
		Increase in fine motor control; increased locomotor skills; agility, coordination, and physical strength.
		Cognitive: ***Concrete operations***; Conservation, seriation, classification of objects, number concept.
		Development of measurable intelligence; growth of language and refinement of usage; refinement of creativity and expression.
		Social/Emotional: Intensification of peer-group ties; growth in cooperation; strengthening of moral development and reasoning; ability to assume roles to empathise.

Prenatal Events

The prenatal period is divided into three parts: the germinal phase, the embryonic stage, and the fetal period. The germinal phase begins at conception and continues through subsequent cell divisions until the 2nd or 3rd week of pregnancy, but the gender and genetic heredity of the organism are determined at the moment of joining. The cell cluster formed by the union attaches itself to the wall of the mother's uterus. Is this the beginning of human life? Some say yes, others are not so sure. The amnion, a fluid-filled sac in which the developing organism floats, begins to form at this time. This sac protects and cushions the embryo and then later the fetus through its prenatal development. Thus, it is a vital aspect of the embryo's environment. During the third week after conception, the placenta and umbilical cord form. The *placenta* is a fleshy membrane that acts as a "way station" between mother and infant, supplying nutrition and removing wastes through the *umbilical cord*, which emanates from the placenta and connects with the infant at the navel. These physical structures create an intimately interdependent relationship between fetus and mother.

Three weeks after conception, the embryo's heart begins to beat. Most of the organs of the body appear during the following month and nervous system development also occurs during this period. By the end of the first month, the embryo is only a fraction of an inch long and weighs less than an ounce. By the end of the second month, the embryo is about one and one-half to two inches long and weighs about two-thirds of an ounce. All of the organs have appeared, and the embryo is clearly recognisable as human. Arms and limbs have begun their development, as have external genitalia, although it is still impossible to determine the sex of the infant by its external appearance. Is this the beginning of human life?

The eighth week marks the beginning of the fetal stage of development. This stage lasts until birth and is a period of growth and elaboration for the whole organism. The young fetus still weighs less than an ounce and is barely three inches long. The head of the fetus is far out of proportion to the total

body length, perhaps as much as one-third as long. Although the head will gradually become more proportional to the body, it will still be disproportionate in size at birth when compared to the average size of the adult head.

During the third month, the fetus is sufficiently developed so that, if aborted, it may make breathing and sucking movements, as well as demonstrate the Babinski reflex (fanning of toes) if stimulated. The fetus will have no chance of survival outside the womb at this stage. Is *this* the beginning of human life?

During the fourth month of pregnancy, the fetus grows to a length of six inches and weights four ounces. Bones have begun to form, all organs are clearly differentiated, and there may be some evidence of intrauterine movement called "quickening." The mother feels the baby alive inside her and may report a feeling of real parenthood for the first time. Is *this* then the beginning of human life?

During the fifth month, a downy covering called lanugo begins to grow over most of the child's body. The fetus' weight jumps to eleven ounces, and the heartbeat is clearly discernable. The eyelids of the fetus are separated. It is about a foot long and soon weighs twenty ounces. The fetus might survive if born at this time, particularly if it receives modern medical care in an intensive care unit. Is *this* the beginning of human life?

During the last three months of its development, the fetus makes dramatic gains in size and weight. Brain development proceeds rapidly. The fetus grows from fifteen inches in the seventh month to sixteen inches in the eighth to twenty in the ninth. In the same time period, weight increases from approximately 2½ pounds to an average of about seven pounds at delivery (LeFrancois, 1980). The fetus becomes more and more independently viable, *i.e.,* it can live on its own if separated from the mother. Certainly this seems evidence that human life is achieved, does it not? However, there have been cultures in the world that do not accept an infant as achieving full human status until one year after it is born. This may seem strange and even inhuman to some of us. It should help us see, however, that *any* conclusion about when *human* life begins is just that, a conclusion. Our society has become embroiled in a controversy over when and why parents may legally and ethically terminate pregnancies. Some argue that efforts to prevent pregnancy are immoral. Others designate the period immediately after conception (as in the case of the IUD or the day-after pill). Others stop at the end of the germinal phase, and still others at the end of the embryo stage. Some accept the idea of termination in the early fetal period, and some will even go so far as the late fetal period. When does human life begin?

Genetics and Issues of Heritability

Inherent in the process of pregnancy and birth is the process of genetic transmission. All cells that go into forming the embryo and the fetus, with the exception of the sperm and egg, contain 46 chromosomes—23 from the father and 23 from the mother. Chromosomes are particles in the cell nucleus containing the genes. Genes are the units of hereditary transmission that determine the traits that make each individual unique. Within each cell, there is a pair of chromosomes that determines the sex of the child. Women carry only X (or female) chromosomes. In males, the pair of chromosomes contains one X and one Y (male). If a sperm with an X chromosome fertilizes the egg, the child will be a girl. If a sperm with a Y chromosome fertilises the egg, the child will be a boy. Therefore, the father's sperm determines the gender of the child.

Table 11.2. Genetic, Congenital, and Situtional Threats to Prenatal and Perinatal Development

Category	*Problem*	*Cause*	*Result*	*Treatment*
Genetic (Chromosomal)	*Sex-linked recessive traits*	*Imperfect matching of X & Y chromosomes*	*Colour blindness, hemophilia*	
	Phenylketonuria (PU)	*Metabolic disorder*	*Mental retardation, neurological abnormalities, emotional disturbances*	*Special diet immediately following birth*
	Down's Syndrome	*Chromosomal abnormalities*	*Mental retardation, physiological defects*	*Counseling, special education, institutionalization*
	Missing or extra sex chromosomes	*Abnormalities in sperm and/or egg*	*Klinefelter's syndrome, (sterility, hormonal deficiencies, retardation in men)*	*Therapy with testosterone*
			Turner's syndrome (blockage of breast development and menstruation in women)	*Injection of estrogen prior to puberty*
			XYY genetic structure (males overly tall, excessively violent, low intelligence)	
Congenital Problems	*Musculo-skeletal malformations*	*Improper replication of genetic message*	*Club foot, cleft palate*	*Surgical correction (by choice)*
	Central nervous system malformation	*Mutant genes; drugs; chemical agents*	*Lesion/separation of vertebral elements*	*Genetic counseling; surgical repair*
	Spina bifida	*X-rays, viruses*	*Open spinal canal, hydrocephalus, paralysis, lack of muscle control, lack of sensation, retardation*	*Remedial physical therapy*
Other	*Premature birth (low birth weight born after 30-week gestation)*	*Maternal health, nutritional status, maternal age, height and weight, weight gain, smoking, use of drugs, uterine problems, lack of prenatal care*	*Psychological and physiological stresses*	*Nutrient control, body temperature control, monitoring of acute problems of fetus*
	Small for date infants (full term)	*Retardation of interutreine growth, inadequate nutrition, genetic or chromosomal anoma, mother's heart disease, toxemia, kidney disease, smoking, use of drugs, viruses, ethnicity, nutrition, infections, placental placement*	*Anoxia, asphyxia, hypoglycemia, pulmonary hemorrhage, brain insult, long-term effects on intelligence*	*Same as for premature birth*

What happens when the genetic transmission process goes away? Genetic conditions can result from defects in genetic or chromosomal structure. One such disorder is phenylketonuria, or PKU, an inherited metabolic disorder that causes mental retardation unless the condition is detected at birth and the child is placed on a special diet. Down's Syndrome results from a faulty, missing, or extra chromosome # 21 and is characterised by several distinctive physical traits and by mental retardation. It must frequently occurs in the offspring of older mothers because aging results in greater risk of chromosomal dislocation or damage in the eggs. Other genetic and chromosomal abnormalities are discussed in Table 11.2. Most of these are best viewed as a special kind of environmental challenge.

Group differences in genetic material exist. Thus, some groups are more prone to some genetic abnormalities because their common history has pooled some characteristics. The concentration of these characteristics depends upon the exclusiveness of their mating (within the group) and particular evolutionary history. Thus, for example, people descended from areas of the world with serious malaria problems (e.g., Central Africa and the northern coasts of the Mediterranean Sea) are more likely to suffer from sickle cell anemia because the genes involved offer some protection against malaria. The gene pool gains a net advantage in such area because the deaths attributable to the anemia problem are counterbalanced by the higher survival rate in response to malaria. Tay Sachs Disease illustrates the case where a damaging "deleterious" genetic trait remains strong in a population because of in-breeding within the group. Jews from Eastern Europe are particularly prone to this condition, which produces mental and physical deterioration.

Techniques of genetic analysis have become refined in recent years. It is now possible to predict the likelihood of any couple producing a child with one of several genetic defects. One of the most common forms of estimation is amniocentesis: a process whereby a long needle is inserted in the mother's abdomen to draw off some of the amniotic fluid. The fluid contains cast off skin cells of the fetus. The chromosomes of these cells are then examined for any abnormalities. The technique also reveals the child's gender, as the X and Y chromosomes are visible. Indeed, one of the more controversial aspects of amniocentesis is determining what information is appropriate to use in decision making by parents. Is gender an appropriate basis for terminating pregnancy? Is a "low-level" dysfunction? Is a serious dysfunction, for which there is a standard treatment, grounds enough? In recent years, the number of prenatal tests has increased significantly, e.g., to include both sickle cell anemia and Tay Sachs Disease. Thus, the issue continue to multiply, and the whole task of prenatal decision making and professional ethics becomes more difficult.

More and more people are becoming candidates for genetic counseling. Counseling centres are usually visited by potential parents who have genetic disease in their family backgrounds. These centres draw up family histories and do chromosomal analyses. They can make prediction on the odds involved concerning the occurrence of a defect. Thus far, the main result of new prenatal assessment technologies has been to *increase* the number of healthy pregnancies carried to term and decrease the number of damaged infants, rather than to produce large increases in abortion. Prenatal assessment sometimes even allows the correction of the defect *in utero* through nutritional treatment or other types of intervention.

Other prenatal factors beyond genetics influence the growth of the fetus. These are presented in

Table 11.3 Influences of the Maternal Environment on Prenatal and Perinatal Development

Influence (from mother)	*Consequence (in infant)*
Advanced Maternal Age	Down's syndrome, retardation, miscarriage, still births
Maternal Health (rubella, venereal disease, poliomyelitis, thyroid malfunction)	Mental deficiency, microencephaly, blindness, deafness, miscarriage, cretinism
Maternal Malnutrition	Fetal death, retardation, rickets, epilepsy, cerebral palsy neurological and emotional troubles, brain development, low birth weight
Meternal Emotions (tension, anxiety, chemical imbalance)	Increases in fetal activity, irritability, hyperactivity, feeding problems
Drugs (LSD & heroin, narcotics, aspirin & barbituates, quineal, pain killers, anesthesia, thalidomide, nicotine, tranquilizers, marijuana)	Morphologicla changes, congenital deafness, depression of fetal respiration/decreased responsiveness, increase in fetal heart rate, fetal hyperactivity, premature birth, fetal addiction and withdrawal, hyperirritability, genetic damage, abnormalities in sexual development
Alcohol	Fetal alcohol syndrome: low birth weight, retarded motor development, heart defects, physical abnormalities (joints and facial characteristics), retardation of intellectual development, withdrawal symptoms at birth
Poverty	Premature birth, infant death, mental retardation
Rh Incompatibility	Fetal erythroblastosis (anemia in newborn due to incompatibility of blood types between mother and infant)
Radiation	Brain, skull, eye formation

Table 11.3. Nutrition is one factor, although evidence of the effects of the mother's nutrition on the fetus is unclear. However, we do know that malnutrition may retard the growth and intellectual capacity of the fetus. Many of the recommendations made regarding parental nutrition are preventive in nature: maintenance of an adequate diet throughout the childbearing years, monitoring by a health care professional, and a weight gain of no more than 25 pounds during pregnancy.

Certain infectious diseases may also lead to birth defects, particularly if contracted while the organism is still in the embryonic stage. German measles is the best known such cause of birth defects. Immunisation of females, particularly married females, has done much to control it. However, syphillis, gonorrhea, polio, influenza, and mumps in the mother have also been associated with birth defects. In

general, any effort to upgrade the basic health of the community reduces the incidence of birth defects. The health of the child *in utero* is thus an exo and macrosystem issue.

The potential negative impact of drugs on fetal development is now widely recognised because of the thalidomide controversy of the 1960s. Thalidomide was a drug placed on the market for women to use in alleviating morning sickness. Use of the drug caused a significant increase in the number of children born with serious physical deformities affecting arms and legs. The damage occurred mainly in Europe, however, because the drug was not approved for widespread distribution in the United States. Despite pressure from drug manufacturers and criticism from colleagues for dragging her feet, a Food and Drug Administration physician stuck to her guns in requesting data on possible side effects. The data finally came—in the form of thousands of damaged children in the countries where the drug was dispensed. This physician's efforts spared many American children, but this is not to imply that the United States has not had tragedies of its own. A compound called DES (diethyl silbestrol) was introduced in the 1940s and early 1950s to pregnant mothers as a measure to prevent miscarriage. Approximately 25 years later, researchers reported that those mothers who might have taken the drug to *have* children may have passed on to these very offspring a tendency towards development of cancer at a very early age. Much research has focused on DES daughters, and the problems they face include not only cancer of the vagina but other reproductive difficulties. DES sons exist also, although their problems have been less publicized. Some of the problems seen to date have included underdeveloped testes and microphallus. The former causes a predisposition to cancer of the testes, and the latter is an uncorrectable malformation. Part of the responsibility for this tragedy must be assigned to a study conducted at the University of Chicago in the 1950s. In this study, DES was administered to a group of pregnant mothers to measure the effects it had on preventing miscarriages when compared to a placebo taken by members of a control group. The effectiveness of DES was deemed indifferent. But, this did not quell an existing enthusiasm for DES. The mothers who took part in the experiment were never informed what drug they were taking—a mistake the University is still, literally, paying for via lawsuits (Norwood, 1980). Where economic interest is strong, children need staunch allies and advocates. The thalidomide tragedies stimulated the Food and Drug Administration to look at other medications. Some evidence suggests that women who take aspirin during the last three months of pregnancy may have more prolonged labour in childbirth. It has also been suggested that certain tranquilizers may cause cleft palate and other defects if taken early in pregnancy. In general, it seems that pregnant women should avoid drugs of all sorts, as much as they can.

What about other substances the pregnant mother may ingest? Alcohol has joined the list of dangerous substances, and informed opinion discourages even small, "normal" amounts. Chronic alcoholics are more likely to bear children with a variety of physical and mental defects, some permanent. Alcohol may be the indirect cause of effect of other difficulties as well. The alcoholic mother may not be eating well and thus malnourishes the fetus. Alcoholism may also be the result of tension that is also transmitted to the fetus. There are certain facial defects that are characteristic of the child who is a victim of what is called "Fetal Alcohol Syndrome", small head circumference, mongoloid features of the eyes, thin upper lip, and short nose. Other effects include mental retardation, irritability, poor coordination, and hyperactivity in childhood. In this respect, the child of the alcoholic is a victim, just as the child of the heroin addict.

It seems that the pregnant woman is generally more sensitive to the effects of drugs and that she passes this vulnerability to the fetus. This extends to a very common "drug", tobacco. Smoking appears to retard the rate of fetal growth and to increase the chances of fetal death and sopntaneous abortion. Experts believe that the children of smoking mothers often experience retarded physical, intellectual, and emotional development. These "personalised pollutants" do not exist alone, of course. Institutionalised pollutants are also a major and growing menace. Air, water, and soil have all been polluted with the by-products of industrial society—petrochemical residues, pesticies, radioactive materials, etc. The magnitude of these effects is unknown.

The mother affects the prenatal environment of the child in other ways. The age of the mother is a factor that affects the physical quality of the child. The optimal age for the birth of a healthy child is usually 20 to 29, as the social and biological conditions for the mother are usually best during this period. This is significant, as we have witnessed *both* more teenage births and more women who postpone childbearing into heir 30s. The economic status of the mother is also related to the health of the fetus. Premature birth is the greatest correlate of infant death and infant retardation, and the phenomenon of low income is linked to premature birth. Continued anxiety or unhappiness in the mother is another threat to a successful pregnancy. Stress produces glandular changes that may alter the blood chemistry and blood pressure of the mother, causing developmental defects in the fetus, especially in early stages of development. The conditions of poverty also set in motion a host of negative influences on the unborn child.

Radiation also has an influence on pregnancy. Pregnant women exposed to the atomic bombs dropped on Japan at the end of World War II gave birth to babies with malformed eyes and brains. Incidents such as the breakdown at the Three Miles Island atomic power plant raise concern about both low-level radiation and the threat of catastrophes. The routine use of X-rays has received criticism for controlling to the background problem. However, in spite of all the prenatal threats and challenges we have outlined, most pregnancies are successful and produce a viable infant.

Following the nine months of pregnancy comes the process of childbirth. Hormonal changes and the reaction of a uterus that has been stretched to a maximum point trigger labour, the process whereby the fetus, placenta, and umbilical cord are separated and expelled from the woman's body. The onset of labour is gradual. The first stage begins with light contractions that gradually increase in frequency and intensity. The cervix dilates to allow passage of the baby through the birth canal. The second stage of labour involves the birth of the child. The third stage (afterbirth) involves the expulsion of the placenta and other membranes.

Although it is subject to a variety of medical complications, childbirth is a normal human function. We shall the social conditions of childbirth can play a significant role in influencing the infant's relationship with his or her family. A physically normal birth need not imply medical supervision or intervention, despite our customary hospital-oriented approach. By viewing birth as a natural process, we will address its role in forming parent-child relations. First, however, we need to return to our account of the child's development.

The First Two Years of Childhood

After birth, the child continues the sequence of development begun in the womb, and a child born

prematurely is, thus, initially delayed in contrast to a full-term infant. From birth to the age of one month, the baby is called a neonate. The neonate is a developing but competent organism whose abilities have traditionally gone unrecognised and unappreciated. At birth it is already a very capable being; able to see, hear and feel. What is more, all its senses seem to be primed for social interaction, for parent-child relationships.

Vision in the infant appears very early. Sensitivity to patterns and contours occurs at birth. Sensitivity to light intensity and the ability to follow moving objects are also early developments. Colour vision is well developed by the age of two to four months. The human face is an ideal visual target for the neonate, and infants seem to have an innate perference for faces over other objects. The human being *is* the social animal.

The newborn is also highly sensitive to a wide range of sounds and can detect the location of sound. Sounds of different frequencies inspire individual responses—lower sounds are calming, higher pitched sounds, irritating. Human voices, and particularly female voices, are particularly attractive. Another well-developed sense in the newborn is olfaction, the sense of smell. At only five days, breast-fed neonates can discriminate the smell of their mother's breast milk from others (MacFarlane, 1977).

The newborn has many reflexes. Knowing what they are can help the professional understand and interpret infant behaviour. For example, the rooting reflex causes the infant to turn its head towards any stimulation of the check. This becomes vital knowledge when seeking to initiate breast feeding. If the baby's head is turned toward the breast by pushing, the baby may instinctively turn its head away from the breast, toward the hand touching its cheek. To the uninformed, this can appear as "rejecting the breast" and can unnecessarily discourage the mother.

The mental world of the infant is a world of the here and now, devoid of memories and expectations. Rather than thinking, the infant behaves and does so largely in response to reflexes and very simply learned responses. Behaviour influences and reflects the growth of the mind and acts as a stimulus to cognition at this early stage of development. Thus, the infant's mind emerges from its patterns of behaviour (Piaget, 1953).

Infants exhibit three principal social behaviours: smiling, crying and cuddling. Cuddling exists at birth but varies in intensity from baby to baby. Neonates smile in the first few weeks of life, but not as a social response. Social smiles do not appear until after the third week of life, and they are usually elicited by the sound of a human voice. By the fourth week, the neonate can establish genuine eye contact with a social stimulus, and thus, visual cues can elicit smiles. Smiling is the currency of early social relationships, while crying is the principal aversive (negative) stimulus that infants use to influence their social environments.

Crying takes several forms. There is the rhythmical cry, which follows a regulated pattern. The angry cry is also rhythmic but more energetic. The pain cry consists of an extended shriek followed by a pause (for the baby to catch its breath). The cry then takes on a more regular tone and is accompanied by frenzied activity. As early as the third week, the neonate develops a "deliberate cry," consisting of a low moan that may be used to attract attention. One of the major items on the parent-child agenda in the early weeks of life together is learning what the various cries mean and how to respond differentially to them.

Smiling and crying are considered early forms of communication for the neonate. Social smiles are more likely to be aroused by the human voice or face than by any nonhuman stimuli. Similarly, the various forms of crying and cooing may be the infant's earliest attempts at communicating feelings to others. The fact that mothers tend to respond to cries of pain more consistently than any other form of cry attests to this communicative power. Indeed, the course of emotional development is characteised by differentiation and elaboration of gross reactions (pain, pleasure, and interest) into the full range of human emotions (Ricciuti, 1973). The normal parent-infant relationship facilitates this development, but disrupted or abusive relationships may thwart it (Garbarino, 1980s).

Perceptual development also goes through some dramatic changes in the first two years. By the end of two months, eye-brain coordination allows infants to differentiate between distinctive features of a pattern and to translate these perceptions into simple coordinated behaviour. Between two and five months, distinctions can be made between increasingly complicated patterns and more elaborately coordinated behaviours undertaken. By five months, infants show a preference for three-dimensional objects over two-dimensional pictures or photographs. In the course of two years, the child progresses from focusing on patterns to interpreting and analysing what he or she sees. Infants after two months may also become *habituated* to a paritcular pattern—they "memorize" it. Transfer of interest from an old to a new stimulus—which piques interests anew, for a time—is called dishabituation. This makes clear why the infant thrives in a stable but changing environment where things are constant enough to be learned but changeable enough to be interesting.

How does language develop during the first two years? As infants mature, they are increasingly able to make fine discriminations among sounds, which may lead the way to the ability to speak. The infant progresses in verbal development from crying to cooing and babbling. Babbling includes many of the sounds found in human language but soon becomes confined to sounds present in the language the infant hears spoken. By the end of the first year, children are producing only sounds that they hear. Language behaviour is shaped by adult models and therefore loses some of the versatility it had at six months. Eventually, the first word emerges, and the child engages in *holophrasic speech*—using a single word, through inflection, to communicate a variety of meanings. For example, "mama?" or "mama." or "mama!" can mean, respectively, "Where is Mom?" or "Mom, I recognise you." or "HELP!" This is followed by the development of *telegraphic speech*—two word utterances that resemble telegrams in which nonessential words have been left out. "Daddy go?" is an example. More complex language follows naturally, given an environment that models spoken language.

How can one characterise the cognitive development of the child during this period? Jean Piaget, who pioneered a stage theory of cognitive development sees two basic human tendencies: organisation (the tendency to combine processes into coherent systems) and adaptation (the tendency to adjust to the environment). Adaptation is the result of the processes of assimilation (making experiences fit one's world view) and accommodation (changing one's world view to meet experience). These processed lead to the development of schemes, or patterns of thought and action. Each stage builds upon the previous and involves more sophisticated thought and action in which abstraction plays an ever larger role (Ginsberg and Opper, 1972). Social development parallels these cognitive shifts, e.g., as the child becomes attached to the parents and begins to learn rules of conduct.

Childhood: From Two to Twelve

By the end of two years, the child has become adept at picking up objects (prehension), and putting things together and rearranging them (relationships). Physical development enhances the progress from nearly total dependence to greater independence. During the pre-school period, the child makes progress and refinement in motor development. The child gains equilibrium (balance in sitting and walking) and feet, arms, and legs are brought into alignment. As locomotion and coordination improve, the child can do more. From six to about twelve years of age, the child's motor development focuses on the shift from control of large muscle groups to control of the smaller muscles. By the end of this period, control of gross motor movements has improved greatly. Agility and strength increase, with males unsually outdistancing females in these features. The link between physical competence and social independence is a logical and natural one—in childhood and throughout life.

Language development and communication undergo a revolution during this period as well. There appear to be three challenges in language development. The child hears a stream of language from another persons and is able to break it into the units of which his or her language is composed—called phonemes. The child must also learn syntax—the way that words are put together to form phrases, clauses and sentences. Finally, the child has to relate sounds to objects and events in the world—semantics. From here, the child advances beyond one and two-word utterances to simple sentences. These sentences are generally declarative in nature and uncertain grammatically. The child then moves on to the mastery of morphemes—small units of meaning that are recognised words or embellishments to words (suffixes, prefixes). The child develops the ability to structure questions.

Much of children's language is unintentionally poetic, but language becomes ever more a means of precise and complex communication. Children just beginning school tend to use language to direct their personal behaviour. In middle childhood and preadolescence, children are still developing some of the rudiments of language and mastering grammatical constructions, but they are also developing what is called a *metalinguistic ability*—the capacity to think of language as an object, and to reflect about words and meanings A sensitivity to metaphor, logic, and the most distinctly human forms of intellectual activity arise (Vygotsky, 1965).

Language development has its parallel in cognitive development. Once children have passed through the stages of the early period of cognitive development, they enter a phase in which they are able to identify and classify objects in the world according to features. They know what makes a man a man, as opposed to a dog. They cannot distinguish individuals within a classification, however. Often preschools who see ten different department store Santa Clauses believe that they are seeing the same person repeatedly. Children at this point in their development are still prone to gross overgeneralisation and oversimplistically leap to conclusions. Therefore, they are easily misled about social events, and adults must help them avoid drawing false emotional conclusions. Divorce, for example, may exceed the young child's analytic ability and produce a wide range of incorrect conclusions unless parents and others are careful, patient, and thorough in helping the child understand.

Intuitive thinking is based on immediate comprehension rather than logical and rational processes of thought. Problems tend to be solved on the basis of insight rather than logic. Intuitive thinking is characterised by a limited ability to classify, by an egocentric perspective, and by a marked over-reliance on physical appearances. This reliance on perception is seen in the phenomenon that Piaget

refers to as conservation. When water is poured from a short, wide beaker into a tall thin one, the young child will generally focus on relative water levels and assume the tall beaker has more water, even if he saw the transference take place. This is different from the adolescent and the adult, who will rely on thought and logic to inform them that the quantity of water remains the same. These limits to children's understanding of the physical world extend to the social world as well, as the example of divorce reveals.

By middle childhood, the child proceeds to what Piaget calls the concrete operational stage. The concrete operational child is able to recognise that simply because an object changes shape or form does not mean that its mass has also changed. There is an increased reliance on logic in dealing with objects. The child also learns to deal with classes of objects. He understands what makes an object a member of a certain class and not of another, *e.g.,* dogs vs. cats. The child also understands the concept of *social ordering*—lining up objects in a hierarchy due to sise, age, number, or shape. A third concept the child masters is that of number, in terms of the number's ordinal sequence and its quantitative properties. All of these intellectual improvements contribute to the social competence of the child as well.

How does the personality of the child develop from the ages of two through twelve ? Personality is generally defined as a unique combination of characteristics that determine how individuals respond to experiences, how they get along with others, and how they get along with themselves. There are a number of factors that shape personality. *Constitutional* factors are inherited characteristics and predispositions. *Group membership* factors include general cultural influences on personality formation. *Role* factors include the person's self-concept and the role assumed in different situations. *Situational determinants* are the experiences of the individual that contribute to personality development. Researchers and others argue over the importance of one factor versus another. We will not discuss these arguments here. It is clear that both adults and peers, through their interaction with the individual child, contribute to personality development. We will discuss the influence of parent socialisation on personality formation. Peers also contribute a great deal to the child's development as models and reinforcers. If anything, the importance of peers as role models increases as the child grows older. Just as physical maturation permits a wider field of exploration, social maturation permits a wider circle of interpersonal influences.

Personality development is linked in part to the development of the capacity for play. In their play relationships, children reveal several types of play: unoccupied behaviour (aimless and solitary play); solitary play (involving no interaction with other children, but more concerted interaction with objects); spectator play (watching others but not interacting); parallel play (playing in proximity to each other, but not *together*); associative play (playing together, but with no real direction); and cooperative play (organised play with others). Play involves social and cognitive functions and is an important arena for development. Some theorists believe it performs an essential function in facilitating creative thinking. All work and no play *does* make Jack a dull boy, and that goes for Jill as well.

For all its importance, play is not enough. Moral development—learning social norms for responsible behaviour—is vital. Several theoreticians and researchers have proposed models for understanding moral development. Some emphasise modeling. Others emphasise the intellectual process of making judgments based on conclusions about one's self and one's relation to the world. All agree that children need to encounter a moral social reality in order to learn to think and act morally. Children are certainly

preprogrammed to develop values and a conscience, but they won't do so in a social vacuum. As we shall, parent-child relations have a lot to do with how well children will learn the moral lessons they need to learn to be a positive influence on the people with whom they interact. Moral development begins with attachment (usually to the parents) and proceeds to ever more complex referents and ever more general and abstract principles (Garbarino & Bronfenbrenner, 1976b). The balance between general ethical principles and orientation to specific people, feelings, and relationships varies from culture to culture and perhaps is even generally different for males and females. Gilligan's research (1980) suggests that females tend to place the value of "not hurting people" in a central position.

Becoming female and male (feminine/masculine) is certainly one of the central issues on the developing child's agenda. The development of gender identity is a controversial issue in many circles, of course. We know that it is controlled jointly by biological forces (*e.g.,* hormones) and social-psychological forces (*e.g.,* modelling and reinforcement). But here we simply need note that most gender-related differences are neither so fixed nor so big as many people seem to think. Most characteristics are quite modifiable, and most individuals contain a repertory of behaviours that includes both traditionally masculine and traditionally feminine characteristics (*e.g.,* physical aggression and nurturance). Male hormones (androgens) seem to have the effect of predisposing the organism (whatever its sex) to rough and tumble activity and perhaps even to physical aggression (Maccoby & Jacklin, 1974). But, boys and girls are first and foremost children. To a large extent we make of them what we will.

By the end of the eleventh year of life, children have established themselves in the world. They have made their first peace with the world. They are boys or girls; they have values and conscience; they control their bodies and their minds; they have character. Then, just when things are relatively well established for them, along comes adolescence, and the pace of change and demands for adaptation increase rapidly, to the point where many of the issues faced in infancy must be dealt with again and reworked.

What is Adolescence in Biology and Culture?

Adolescence marks the end of childhood and the onset of the transition to adulthood. The changes adolescents undergo in their bodies, minds, and social relations are as profound as any that the human faces across the entire life span. Just prior to adolescence, the bodies of children have not developed sexual characteristics, and there is not much to physically distinguish boys from girls. In school, lessons are still mainly concerned with basic reading, writing, and arithmetic skills; preadolescents are not yet ready to reason abstractly. On their own among their peers, preteens are usually just beginning to notice the opposite sex and awkwardly participate in mixed-sex activities. Most are still very involved with and influenced by their parents on a day-to-day basis. By the end of adolescence a few short years later, young adults are mature physically, mentally, and socially. They may be starting to work, off at school, in the military married, and may even be parents. Clearly the teenage years are a time of deep and dramatic changes.

Adolescence is stereotypically seen as a time of turbulence and intensity. Most of us who care to recall our own teenage years probably remember it as both better and worse than it actually was. Perhaps no time in life has been as alternately romanticised and feared. Stereotyped exaggerations and

overgeneralisations abound. These plague those who would serve youth because they must always deal with the negative image of adolescence presented by the mass media, indeed in the culture as a whole.

The experience of adolescence can be likened to passing over a narrow and shaky bridge; the security of childhood is forever behind, the stability of adulthood looms far ahead. There is no way to go except forward. While on the bridge it seems an immeasurable distance, and falling off is a constant threat, though relatively few actually do. What are the changes occurring along the way? How can we make the passage safer? These are some of the questions we will attempt to answer in this section.

The very existence of adolescence illustrates the nature of human development. There are certain specific biological events occurring in the teenage years to both boys and girls. Yet the *meaning* and *importance* of these physical changes vary from culture to culture and over historical periods. In many cultures, and indeed, in our own culture until the present century, there was no period of life recognised as adolescence. Children simply matured and became adults as soon as they were able to take on adult roles. Adolescence as we know it today emerged as teenagers were consigned to a kind of social limbo (in school and out of the workforce). Thus, we must consider adolescence in historical and cultural context, as well as in terms of the biological, mental, and social dimensions of young people's experiences.

The biological start of adolescence is the growth spurt that signals the beginning of puberty (sexual maturity). From birth onward, the rate at which children grow each year slows. The growth spurt reverses this trend, and for about two years, the rate of growth approximately doubles. American boys currently begin their growth spurt between the ages of ten-and-a-half and sixteen, girls between eight and eleven-and-a-half. This difference alone causes some of the social static in peer relations, as short boys and tall girls maneuver for position in junior high school.

The growth spurt is followed by the maturation of the sexual organs (ovaries in girls, testicles and penises in boys), and later by secondary sex characteristics (facial hair and lowering of the voice in boys, breast development and broadening of the pelvis in girls, and the appearance of pigmented and axillary hair in both sexes). All this growth is stimulated and accompanied by hormonal changes that may precipitate mood swings. As if teenagers didn't have enough to contend with they have to face up to the ups and downs of feelings that often leave them—and the adults who care for them—confused.

The typical adolescent tends to be self-conscious about these changes, especially if they are early or late, *i.e.,* if their physical maturation is "out of sync" with that of their peers. It seems that early-maturing girls and late-maturing boys have more trouble adjusting in adolescence that their friends who developed along with the majority (Weatherly, 1963). However, as adults they may have developed compensatory characteristics, *e.g.,* humor, insight, and flexibility (Jones, 1965). There really is no perfect time to mature sexually nor perfect physical development, and most teens suffer anxiety over real or imagined physical flaws. One classic study found that 61 per cent of the boys and 72 per cent of the girls in the tenth grade desired some change in their physical selves: in their complexion, proportion, weight, hair, and so on (Fransier & Lisonbee, 1950). No doubt, all people feel some dissatisfaction with their appearance, but the rapid changes and new social involvements in the early teenage years intensify physical self-consciousness.

Menarche (the onset of menstruation) for girls and nocturnal emissions for boys are tangible proof

that one is growing up. Together with the fact that the youngster looks different, puberty profoundly affects the self-image, and indeed the image others see of the adolescent. Depending on the context in which they occur, these sure signs of maturation can themselves generate either apprehension or pride or both in teenagers and their parents. For example, parental reaction is though to be one of the primary determinants of the psychological impact of menarche (Konopka, 1966). Parents are often surprised by and uncomfortable with the emerging sexuality of their offspring, particularly their daughters, perhaps because they fear that sexuality will become a vehicle by which the adolescent challenges adult authority and power. No professional helper should ignore the power of teenage sexuality as an issue in the adolescent's psychology or in the family's dynamic interactions.

At the same time that puberty is occurring, equally drastic changes take place in the thinking of many adolescents. Abstract reasoning, the ability to develop theories and think hypothetically ("what if . . . ?"), typically begins around the age of twelve (Piaget, 1967). Piaget called this stage formal operations, and it is the ultimate stage of cognitive development. Adolescents are now capable of the same kind of logical and intellectual processes as adults. Formal operations extend to self-reflection as well. Burner describes this cognitive development thus: "The child now can conjure up systematically the full range of possibilities that could exist at any give time" (Bruner, 1960). The individual personality begins to arise out of the ability to imagine one's own "life plan" and to exert discipline over the self in trying to realise one's goals (Piaget, 1967).

The basic mental and physical changes of early adolescence set the stage for the personal and social involvements that develop through the teenage years. It is important to understand the links between the mental, physical, and social aspects of the adolescent's life. As teenagers begin to look and feel more like adults, they consequently develop changing conceptions of themselves that reflect their new appearance. Changing appearance and new interests lead to new social contacts, that can upset the stability of childhood. Altogether, the adolescent is thrown into a challenging, perhaps even overwhelming, situation—a situation that we will now examine more closely.

Psychosocial Development

Identity formation is an important issue in adolescence. By identity we mean the person's sense of self, the individual's way of thinking about his or her relation to the rest of the world. Erik Erikson, a Freudian psychologist and one of the leading theorists in this area, conceptualised adolescent identity as "a conscious sense of individual uniqueness . . . an unconscious striving for a continuity of experience, and . . . as a solidarity with a group's ideals" (Erikson, 1968, p. 208).

According to Erikson (1968), identity formation is the most important developmental task of adolescence. The newly acquired capacity to self-reflect and to consider possible courses of action allows, or even impels, the adolescent to reassess the past and begin to work toward a future. Social expectations to make commitments to love and work are challenges to identity—questions that demand answers: What do I want? What should I do? Who am I? These are the important and difficult concerns of identity formation facing the adolescent. They provide the backdrop for relations with adults and peers.

The journey from childhood to adulthood is a process of shifting and slowly coalescing self-definition. Offer (1969) describes three stages in this process: discovery, experimentation and mastery.

At first the young adolescent begins to think reflectively. New roles, relationships, ideas, and behaviours are tried in midadolescence, and by late adolescence, the youngster has begun to master feelings and to establish some sort of personal and social self-definition. The adolescent's environment—family, friends, school, neighbourhood—will have a profound effect on identity formation. It is *through* interaction with others that the adolescent defines him or herself, and the support or resistance he of she gets from others will play a large role in the kind of adult the adolescent becomes.

The adolescent's most important social relations are generally with family and peers. As the scope and power of the peer group increases, the family may diminish as a source of day-to-day direction for the teenager. Issues of independence, responsibility, and freedom are contested in the family as the gradual process of disengagement by the teenager takes place. The teenager's changed physical status seems to stimulate efforts to change his or her social status within the family as well, and the teenager becomes more assertive in family interaction (Steinberg & Hill, 1978).

The adolescent's concern with identity and his place in the world is understood and supported by age-mates going through this process at the same time. The peer group emerges as a context for fostering adolescent independence from the family and reinforcing social ties among adolescents. It functions as a "reference group," defining values, behaviour, and rules by which the individuals can measure and orient themselves (Sherif & Sherif, 1964). Winch (1965) goes so far as to describe the peer group as "an interim kin group between the family of origin and the family of procreation" (p. 522).

But the dominance of the peer group is relatively short-lived. As adolescents gain self-confidence and autonomy, they become less dependent on the group and more concerned with heterosexual relations and individual interests (Douvan & Adelson, 1966). Thus, patience is one of the primary virtues for adults charged with the responsibility of caring for adolescents.

The Transition to Adulthood

If we think of adolescene as beginning with puberty and the prospect of formal operations, what marks the end of adolescence and the beginning of adulthood? There are no clear biological transitions, for the adolescent is already a functional adult, physiologically speaking. Adulthood is a *social* concept, and leaving adolescence is accomplished by taking on adult roles. At the heat of adulthood lies responsibility. Adults assume responsibility for their own behaviour and well-being, for the well-being of their families and the development of children and youth.

How do adolescents become adults? They need to prepare for the work, social, and personal roles of adulthood. We can look at the roles adolescents engage in to see how well they prepare youth for adult roles. School, of course, is the teenager's primary responsibility. More children are receiving more education than ever before, partly because our technological society requires a more educated work force (Coleman *et al.*,1974). School dominates the human ecology of our adolescents (Garbarino, 1981b).

What is the effect of the increasing importance of education on young people? For one thing, school provides a kind of education that is intellectual, abstract, and individualistic. Many have criticised the isolation of schools from the larger community, even from people of other ages (Bronfenbrenner, 1975). For another thing, the deck is stacked against those who are not academically superior. As blue-collar jobs become a smaller part of the economy, there is increasing pressure to succeed in school and

increasing hardship for those youths who do not. Anyone concerned with adolescents must be concerned with helping them make their peace with schools and schooling.

The increased emphasis on education in recent years has led researchers to wonder whether adolescence has extended into the early or even mid-twenties. Kenneth Keniston (1972), for example, has written of a new stage in the life cycle he calls "youth." There "post-adolescents" are young people of advanced education and moral development marked by their ambivalent relationship to society. Whether "youth" is a permanent part of the social landscape or a passing curiosity of the turbulent 60's remains to be seen. In either case, the possibility for further evolution or expansion of adolescence because of changes in the social environment remains clear.

The transition from being a child in a family to starting a family of one's own is another developmental issue that makes the advent of adulthood. For many adolescents, marriage is the most important step to adulthood. Indeed, sexuality is probably the only aspect of life in which adolescents can unilaterally declare themselves to be adults. Marriage can be a way out of school, family, or work, but adolescent marriages in our society tend to be most unstable (Bane, 1976). This instability is derived from the strain of premarital pregnancy and the pressure of premature parenthood or the poverty and dependence in which young people starting out find themselves. Studies indicate that adolescents who marry may suffer from a lack of self-confidence, compared to their age-mates who do not marry (Duvall, 1975). Patience is a virtue for adolescents, as much as for the adults who care for them.

Both work and family transitions can be eased by understanding the difficulty of passing from dependency and a lack of opportunities for meaningful activity, to responsible independence and autonomy. Settings that prepare adolescents for the future, that integrate them into (rather than segregate them out of) the larger community, and that foster the development and maturation of the complete adult person are at a premium. Our institutions, from the family and school to industry and government, can make the journey from childhood to adulthood smoother and more pleasant by arranging themselves to allow children to gradually take on the roles they must assume to become full-fledged adults (Benedict, 1938). Just as society created "the adolescent," society can change and ease the difficulty facing the adolescent as he or she passes through this most exciting and trying period of life. Adolescence provides enough intrinsic challenges. Our task is to encourage a social environment that allows youth an opportunity to safely take advantage of it.

Research Capsule

According to Newman et. al. (1979), the history of cross-cultural research is not noteworthy for its contributions to the research on child development. While researchers have been able to use different cultures as settings for research into important issues of child development, cross-cultural research has, by and large, failed in its ambition to "increase the generality of psychological laws." In other words, researchers are often unable to successfully investigate a particular developmental concept across cultures. What are the reasons for this failure? It may be that cross-cultural research is simply an untrustworthy method for unraveling the knot of variables affecting growth of the individual. The average researcher might like to be able to investigate the manifestation of one factor, such as cognitive development, across cultures, but he or she should realise that this does not exist in a vacuum. Any variable under examination is affected by a pooling of social, cognitive, physical and cultural factors. This is a fact that has escaped some researchers.

Cross-cultural research offers a great promise as well: We can simply learn more about child development and cultural differences by using a cross-cultural design as the mode for investigation of a particular child development issue. Perhaps it is useful to look at one such study as an application of the strengths and weaknesses inherent in this type of study.

Ferby (1978) sought to answer the following questions: What are the bases across cultures of childrens' decisions about *sharing*? With whom do they share their personal possessions and why? What is the relationship of the developmental course to the sharing of one's possessions?

The researcher took two samples: a "developmental" sample and a "cross-cultural" sample. The developmental sample consisted of 30 American subjects at each of five age levels: 5-6 years, 7-8 years, 10-11 years, 16-17 years, and adults. The cross-cultural sample was introduced to investigate "the degree of variability that might be found in Western. The comparison groups were American children at both the ages of 5-6 and 10-11 years, compared with groups of Israeli city dwellers and Israeli kibbutz dwellers at the same ages. The comparison envisioned was that of the industrialised, individualistic society (American) vs. the collective society (kibbutz residents) vs, a hybrid of the two (Israeli city dwellers) which might contribute to an understanding of the differences between the two groups at "extreme" ends of the spectrum. For each group, 30 subjects were chosen at each of the two age levels. In all groups, there was equal participation by both sexes.

Subjects were interviewed as to the issue of sharing of personal possessions. They were asked questions about the "morality" of sharing as well as other reasons for sharing. Each subject was interviewed in his or her own language. These interviews were then analysed for their content.

In the developmental sample, it was found that 5-7 year-olds shared largely with their own family or with those they thought friendly. They believed "sharing is good"—a belief shared by older children. They feared damage and destruction of their possessions, and this was also a consideration for older children. Seven to eight-year-old children implied that they would not share with those who would not share with them. Ten to eleven-year-olds believed the evaluation of the person to be shared with was important. They also shared to foster well-being in the other person—to allow them to experience some activity or have something they did not already own. Sixteen to seventeen-year-olds shared with those they believed honest and responsible. They also assessed their own need for the object and the use made of it by the borrower. Adults based sharing on the trustworthiness of the other and the happiness it gave them to share.

In the cross-cultural sample, the 5-6-year-olds in the American and nonkibbutz Israeli samples used their families as the basis of evaluation for sharing. In the kibbutz, children are surrounded by a family of their peers. Therefore, it is with respect to their peers that the standard. I won't share with you. "This rationate because equally as important for American children in the ages 10-11, since by then they were spending much of their time is school.

Older children across all groups were more concerned with doing a favor for another.

This study presents a sizeable amount of information as to the bases of decision making about sharing across two cultures and across a large age range. What are the strengths of this study ? It clearly provides information on the subjective notion of sharing, particularly in childhood and adolescence, and presents how these notions change and stay the same across ages and cultures. But

several shortcomings can also be noted.

The study, as such, is cumbersome due to the fact that it separates age from other factors on one level (the developmental sample), and then combines age and culture effects on the other (cross-cultural sample). It might have made more sense to combine these factors in one population or to totally separate them. The age samples and culture samples are arbitrarily selected—it is not clear why Israel was considered as a comparison site rather than England, France, or Russia. There is, likewise, no rationale give for the age grouping.

Caution must also be taken in how the findings are interpreted. This is *not* a study of sharing *behaviours*, but a study of subjective *beliefs* about sharing. One cannot determine from this study how actual *patterns* of sharing change across ages or cultures.

Most importantly, this study again falls prey to the pitfall that, Newman and his colleagues (1979) talk about: It is an attempt to isolate the effects of two variables upon sharing without an acknowledgment of other influences. Furby does not consider what the influence of socio-economic status or intelligence upon beliefs surrounding sharing may be, but they *are* part of the overall picture. To be fair, to consider the effects that all possible factors have no one belief or behaviour may be beyond the grasp of the average researcher. It is still important for the reader to carefully scrutinise the message any study tries to support.

Practice Capsule

The level at which the body will detoxify it, will put the fetus at risk. The mother who takes as little as one drink per day may be causing the risk of learning impairments in her child. Those who take two or three drinks a day may run the risk of spontaneous abortion.

Severe defects may result in those children whose mothers consume five or more drinks daily. The effects can be modified by good nutrition on the part of the mother and the natural resistance of the fetus to adverse influences. The most severe injuries include: brain damage, deficiency in intellectual and neurological growth, low birth weight and size, small head size, abnormal facial features, nearsightedness, undersized teeth, cleft palate, and heart defects. None of these effects is reversible.

Twenty-three to 29 per cent of children born to heavy drinkers demonstrate full-blown syndrome effects while 33 per cent have minor congenital abnormalities. Two cases are reported for every 1,000 live births. This does not tell the whole story. A large number of cases still go undiagnosed, as not all doctors recognise the signs and symptoms of the syndrome as yet.

As much as reliable diagnosis techniques are needed, prevention compaigns aimed at reducing the occurrence of FAS are even more necessary. It is up to the health professional to recommend that the woman contemplating pregnancy avoid all alcohol from the time of conception until the child is born. If total avoidance of alcohol cannot be achieved, then at least vigilance and caution in alcohol intake should be insisted upon. The woman should be educated to know the effects of alcohol on her own system and to monitor these. There are existing education/prevention programmes in this area for mothers-to-be as well as movements to label the hazard on the bottles of alcoholic beverages themselves. In the final analysis, the responsibility for the safety of the fetus lays in the hands of the mother herself and her primary health care giver.

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Aries, P. *Centuries of childhood.* London: Jonathan Cape, 1962, 447 pp.

A pithy history of the Western family as an idea rather than as a reality. The major thesis explores how the ideas entertained about family relations have changed over hostorical time. The author asks the questions: How did we come from the ignorance of childhood in the tenth century to the centering of the family around the child in the nineteenth century? How far does this evaluation correspond to a parallel evolution of the concept people have of the family, the feelings they entertain towards the value they attribute to it? The book is worthwhile for its thoughtfulness and its unique approach to an underexamined area.

Coleman, J. *Youth: Transition to adulthood.* Chicago: University of Chicago Press, 1974, 193 pp.

This study grew out of one President's Science Advisory Committee and represents the combined work of social scientists and educators concerned about the process of becoming an adult in today's society. The group examined the environments that adolescents inhabit, especially school and work, with regard to the developmental needs of youth. The education system is faulted for segregating youth from the rest of society and for not providing more of a range of experience important to maturation. The conclusion of the book is a thoughtful and dramatic collection of suggestions for social and institutional innovations offering youth varied opportunities in addition to, or instead of, traditional educational programs.

Hetherington, E.M., and Parke, R. D. *Child psychology: A contemporary viewpoint* (2nd ed.). New York: McGraw-Hill Book Company, 1979, 680 pp.

A standard text on child development that is up-to-date and comprehensive. The book is oriented around such topics as cognitive development, intelligence, language, early experience, genetics, sex typing, and moral development. It succeeds in presenting multiple theoretical viewpoints guiding research. The relationship between research knowledge and applied practice in understanding child development is emphasised.

Norwood, C. *At highest risk: Environmental hazards to young and unborn children.* New York: McGraw-Hill Book Company, 1979, 280 pp.

This book deals with new scientific research concerning *environmental* factors contributing to developmental risk in the fetus and young child. The relationships between the child and carcinogenic (cancer-causing), mutagenic (causing possible change over generations), and teratogenic agents (causing defective from or structure in the fetus) are examined. The book boasts particularly good discussions of the DES controversy and hyperactivity in the child.

Sameroff, A. J., and Chandler, M. J. Reproductive Risk and the Continuum of Care-Taking Casualty. In F. D. Horowitz (Ed.), *Review of Child Development Research,* 1979, pp. 187-244.

This chapter is also a review of the literature concerning reproductive risk, particularly on the identification of variables that increase the "risk" that a child will have a poor developmental outcome. The conclusion is that most research has focused on discovering the links between defects and causes of these defects. The authors feel that a transactional model is necessary to understand the range of developmental outcomes described in the literature. To the extent that the child elicits or is provided with nurturance from the environment, positive outcomes will be a consequence.

Questions for Thought

1. When asked who made a child different from a grown-up, the children in *Looking Up* had a variety of response: "Kids like winter and grown-ups don't," "Grown-ups can't hang by their knees." These are perceptions about the qualitative difference between adulthood and childhood. Can science say anything more? Using what is known about the developmental process, support one of the following positions: adulthood is qualitatively different (different in nature) from childhood, adulthood is quantitatively different (different in degree) from childhood, childhood is both qualitatively and quantitatively different from adulthood.
2. Think of a novel you have read with a child or adolescent as the principal character (e.g., *To Kill a Mockingbird, Great Expectations, Catcher in the Rye, Ordinary People*). Do you think the author adequately captures the childhood/adolescent experience ? Why or why not ?
3. Describe some of the infant's developmental needs. What are the important developmental issue that arise ? How are they different/the same as those of an adolescent ? What changes take place as the child grows ? How are these needs answered ?
4. What role does each level of the ecosystem play in supporting individual development prenatally ? In infancy ? Childhood ? Adolescence ?
5. Is it fair to say that modern society "invented" adolescence ? Was adolescence formerly only the province of the rich ?
6. Some people charge that reformers are making too much fuss about the environmental hazards facing pregnant women. They charge that worrying about alcohol, tobacco, sugar, salt and the like is more of a threat than drinking, smoking and eating. Is that a fair charge ?
7. As technology improves our ability for intrauterine diagnosis, will we simply be adding another psychological burden to pregnancy and risking a growing imperative to abort less-than-physiologically perfect fetuses ? Is this result inevitable?
8. What advice would you give to parents facing the puberty of their first child ? What would your rationale be, based on the evidence presented in the chapter ?

12
The Newborn Infant

Physical Development

The weight of the newborn infant averages about 3.4 kg (7.5 lb); boys are slightly heavier than girls. About 95 per cent of full tern newborn infants weigh between 2.5 and 4.6 kg (5.5-10 lb). length average about 50 cm (20 in); approximately 95 per cent of infants are within the range of 45-55 cm (18-20 in). Head circumference averages about 35 cm (14 in), ranging from 32.6 to 37.2 cm (5th-9th percentiles).

Body proportions of newborn infants differentiate them sharply from older infants, children and adults. The head is relatively larger, the face rounder, and the mandible smaller than in older children or adults. The chest tends to be rounded rather than flattened anteroposteriorly; the abdomen is relatively prominent and the extremities relatively hort. The midpoint of stature of the newborn infant is near the level of the umbilicus, whereas in the adult it is at the symphysis pubis.

At birth, minor traumatic effects of labour may be apparent, such as edema of the vertex or overriding of cranial bones, and infrequently there may be more severe injuries. There may be other minor anatomic variants of little or no significance. Normal anatomic features differentiating the newborn from the older child include external auditory canals that are relatively short and straight, with thicker eardrums that are placed more obliquely to the canal. The middle ear contains a mucoid substance that may be mistaken for an exudate of infection. The eustachian tube is short and broad. There is usually a single mastoid cell in the antrum; maxillary and ethmoid sinuses are small, and the frontal and sphenoidal ones are undeveloped. The liver and spleen are commonly felt at or just below the costal margins, and the kidneys are often palpable.

The posture of the newborn infant tends to be one of partial flexion, simulating the fetal posture. The latter can often be determined by folding the infant into its most comfortable position, in which a more or less ovoid shape is created. Sometimes minor and occasionally major orthopedic abnormalities of the infant reflect the effect of intrauterine posture and pressure on the growing fetus.

Physiology

The prime need of the newborn infant is to establish adequate respirations for the exchange of

gases. The rate of established respirations ranges generally from 35-50 breaths/min; brief excursions outside this range are common.

Cardiac adjustments of the neonatal period are often associated with transient murmurs. The heart rate ranges from 120-160 beats/min. The heart of the newborn infant seems large in proportion to the thorax when assessed by adult standards.

Activity of newborn infants directed towards meeting nutritional needs includes crying when hungry and a tendency when hungry to turn the head toward and to root about for the nipple or another stimulus placed close to the oral area (rooting reflex). Sucking, gagging, and swallowing reflexes are active. The newborn infant is capable of nausea and of vomiting.

The infant initially expresses hunger at irregular intervals, but by the end of the 1st wk will usually be reasonably comfortable feeding at intervals ranging from 2 to 5 hrs. No schedule of feedings will meet the demands or needs of all infants; if the infant and mother are close to each other during the immediate postnatal period, such as in a rooming in arrangement, the opportunities for comfortably finding the baby's patterns of sleeping, awakening, and feeding will be as optimal as can be expected.

The first stools are generally passed within 24 hr and consist of meconium. When milk feedings are established, these stools begin to be replaced on the 3rd-4th day by transitional stools, which are greenish brown and may contain milk curds. The typical milk stool of the older infant follows after an interval of 3-4 days. The frequency of stools in the newborn infant seems closely related to the frequency of feeding and to the amount of food obtained, averaging 3-5/days by the end of the 1st week. On any given day during the 1st week about 1 infant in 50 will have no stool at all; it is not unusual for a healthy infant to have as many as 6-7 stools/day after the 2nd day, particularly if he or she has been breast fed.

At delivery the body temperatures of mother and infant are virtually the same. The infant's temperature falls quickly but transiently; it is usually restored within 4-8 hrs. The caloric requirement of the newborn infant for maintenance of body heat and basal activity is usually about 55 kcal/kg/24 hr. By the end of the 1st week the total caloric needs will be approximately 110 Kcal/kg/24 hr, of which 50 per cent supplies basal metabolic needs, 40 per cent is invested in growth and in activity, 5 per cent is needed for the specific dynamic action of protein, and 5 per cent is lost in feces and urine. In the newborn infant the extracellular fluid compartment may constitute up to 35 per cent of body weight. During the 1st few days of life there is a loss of fluid that, in the absence of unusual oral intake, generally averages about 6 per cent of body weight and may occasionally exceed 10 per cent. When this loss is excessive, there may be dehydration or inanition fever on the 3rd-4th day. After the 1st wk the need for water ranges between 120 and 150 ml/kg/24 hr. About half of this is devoted to formation of urine and the rest to insensible loss by lungs and skin and to other losses. Insensible water loss has a relatively fixed relationship to the calories metabolised by the infant (about 40 ml/100 kcal). Losses in stool are variable, those in sweat minimal.

Because metabolism in newborn infants favours the anaerobic or glycolytic pathway, they are more tolerant of periods of hypoxia than older infants, children or adults. This tolerance for hypoxia is only relative, however. If oxygenation of the newly born infant is not quickly established, a rapidly progressive metabolic and respiroatry acidosis may ensue (due to accumulation of lactic acid and carbon

dioxide), and hypoxic tissue injury may occur.

Glomerular Filtration Rate (GFR) and urine output are low in the 1st day of life but increase rapidly in the 1st 2 week. The FGR does not approach adult standards until the end of the first year. During the 1st wk proteinuria is common, and the urine may contain an abundance of urates, which may give the diaper a pink stain. Urea clearance is low, and the ability to concentrate urine is limited. Production of ammonium ion also is limited, and phosphate clearance is low. The blood urea nitrogen (BUN) level may rise transiently.

The hemoglobin level of the newborn infant ranges around 17-19 g/dL, and mild reticulocytosis and normoblastemia may be observed for the 1st day or two of life. Leukocytes number about 10,000/ mm^3 at birth and generally increase in number for the first 24 hr, with a relative neutrophilia. Counts as high as 25,000-35,000 may be encountered. After the 1st week the total white cell count is likely to be below 14,000, with the characteristic relative lymphocytosis of infancy and early childhood./ Stressful situations in the newborn infant, including overwhelming infections, may be associated with little or no leukocytosis and even with leukopenia.

There is little or no transfer of certain clotting factors from mother to infant. Establishment of normal hemostatic mechanisms depends on the acquisition of normal intestinal flora and elabouration of vitamin K.

Placental transfer of maternal hormones produces temporary changes in the breasts and genitalia of the newborn infant and possibly in other tissues as well, and the withdrawal of maternal hormones or other metabolites may contribute to temporary hypofunction of the parathyroid gland. Maternal hyperglycemia may dispose the infant to hyperinsulinemia and hypoglycemia. Blood levels of sugar and of calcium are normally relatively low in the newborn infant, and further decreases (below about 20 mg/dL of sugar or about 7.5 mg/dL of calcium) may cause convulsions.

The gamma globulin level of the newborn infant (almost entirely maternal igG) is slightly higher that of the mother due to an active transport mechanism. The igG affords protection against many viral and some bacterial diseases.

13
Physical Growth and Development

1. General

Every mother would be keen to know, whether her child is growing well and that his development is normal. Initially concern may be about the gender of the child but eventually development becomes more important for the parents.

Growth is the increase in size of the body (and its parts) whereas development is the functional maturation, and acquisition of skills etc. Normally, growth and development go hand in hand i.e. the child matures in all aspects of his being; height weight and growth of organs, acquisition of neuromuscular control, skills, emotional development, adaptation to stress, ability to assume responsibility and achieve freedom of expression.

The hallmark of a child's growth and development is based on two facts: (*i*) the gestation period in the uterus is quite long, (*ii*) the child is dependent on his parents for too long, as compared to other species.

2. Phases of Growth

The period of growth and development is subdivided into: (*i*) infancy, (*ii*) childhood, (*iii*) youth—before attaining adulthood.

(i) *Infancy:* This is generally accepted to be the first year of life. It can be sub-divided into: (*i*) the newbron, (*ii*) neonatal, (*iii*) early infancy-first 6 months of life and (*iv*) late infancy- 6 months to 1 year of age. During this stage of development the infant acquires more independence and shows ability to walk, talk and partake in other activities.

(ii) *Childhood:* This is sub-divided into: (*i*) pre-school child, (*ii*) mid-stage, (*iii*) late childhood. The pre-school stage last upto 5 years of age, during this time the child learns to train his bowel and bladder, acquires abilities to independently eat and talk. The mid stage extends from 5 years of age up to a point where the child begins to grow rapidly (preceding the puberty, *i.e.* 9 to 13 years of age), being earlier for girls and later for boys. The late childhood connotes the onset of menstruation in girls and similar changes in boys.

(*iii*) *Youth:* Early part of youth is called adolescence; a stage of development where the individual

is neither an adult nor a child. During this period the physical maturation is complete at 18 years for girls and 20 years for boys. The emotional development however, completes at a later stage and may well encroach into adult life. This period of youth extends up to 24 years of age.

Heredity, nutrition, acute or chronic illness, and environment play their role in the growth and development.

Physical surroundings, *e.g.,* lack of sunshine, poor hygiene, seasons of years, (the greatest increase in height occurs during the spring and least in the fall, while weight gain is usually greatest in the fall and least in the spring), psychological factors (inter-relationships with parents, teachers and others) and socio-economic factors also effects growth and development. Other factors are: Endocrine factors (*e.g.* hypothyroidism and hypopituitarism cause retardation) and Emotional factors (lack of love and security in childhood may distort social and personal development).

The physical growth to a great extent depends on the hereditary factors, *i.e.* tall parents will have tall children—but not always. Tonics and medicines have hardly, if any, role to play in increasing the height or to determine the development of a child. However, nutritional factors have a definite role in determining the growth e.g. malnourished child may not achieve his full growth potential. Infections in the mother, during her conception or a ill health during her childhood would have an adverse effect on the growth and development of her child.

Growth Parameters

Weight

In the western countries newborns weight on the average 3.4 kg. Infants weighing under 2.5 kg at birth are classed as premature infants in those countries. In India the average birth weight among the masses is only 2.7 to 2.9 kg. The average birth weight of newborn of well to do Indian families is 3,000 gm. After a loss of weight in the first few-days of life, the weight is regained by the 10th day of life. Thereafter, and normal infant gains about one ounce each day during the first 3 to 6 months and doubles his birth weight by 4-5 months. Later on the weight gain is less rapid i.e. about 15 gm per day. The weight trebled by the end of the first year. Thereafter, there is a weight gain of about 2 kg each year, and becomes 4 times the birth weight by 2½ years of age. During the second year there is usually a sharp decline in the rate of weight gain as compared to first year.

Height

The average height of a newborn is about 50 cm but less in the poor communities in India. During the 1st year of life, there is an increase of 25 cm in length. Thereafter there is an approximate increase of 7.5 cm per year until 7 year of age. After this growth in height is about 5 cm per year. By 13 years of age he attains three times the height of birth.

Dentition

Eruption of teeth usually begins at 6 months of age. They may appear earlier or be delayed till 1 year of age (both are within the range of normal). All the 20 temporary/milk teeth erupt by 3 years of age. Usually the central and lateral incisors erupt during the 1st year (the lower teeth prior to the upper); the Ist molars come out early during the 2nd year, the cuspids which fill in between the incisors

and the 1st molars erupt during the latter half of the second year; and finally 2nd molars appear during the 3rd year.

Permanent teeth usually being to appear by 6th year of age (starting with the molars) and are complete by 12 years of age.

Head Circumference

Measurement of head circumference is an important parameter to assess the growth of an infant. Head circumference is measured by encircling the head with a tape which passes over the most prominent part of the head in front and behind. The head is normally 1.25 to 2.5 cm larger than the chest at birth, about same during the first 2 months and smaller in circumference thereafter. Hence, infants appear to have big heads, large trunks and short extremities as compared to older children, up to 2 years.

The circumfrence of the head in Indian infants at birth is on an average 13.8 inches or 35 cm. The increase in circumference and head circumference at various ages are shown in Table 13.1.*

4. Milestones

Development of milestones in infancy progresses from headside to footside *i.e.* neck control, control over hands, control over trunk and lastly control over legs. Behavioural reactions develop with increasing age. The premature infant is "slow" to begin with but often "catches up" with the normal child by 2 years of age. Certain reflexes are normally present in the newborn (startle refllex, grasp reflex, neck reflex), but that usually disappear between 3 and 4 months of age. Persistence of such reflexes beyond that duration, indicates delayed development. Some of the milestones, depicting the growth and development of a child at various ages are given on next page:

Table 13.1: Heal Circumference at Various Ages

Age in months	*Increment per month in cm*	*Head circumference at various ages*		
0 to 3	1.5	0 to 3	months	35.6 cm
3 to 6	1.0	3 to 6	"	38.6 cm
6 to 9	0.6	6 to 9	"	40.06 cm
9 to 12	0.4	9 to 12	"	41.8 cm
12 to 18	0.25	12 to 18	"	43.05 cm
18 to 24	0.13	18 to 24	"	44.1 cm
24 to 36	0.06	24 to 36	"	45.1 cm

* Data culled from I.C.M.R. growth studies and measurements of new born babies in Women and Children Hospital, Madras.

At 4 weeks he lies supine, head turned to side, hands fisted; at 16 weeks the child makes symmetrical posturing, head in the midline, steady, freely rotates, fingers, nimble, hand not fisted; by 28 weeks he can sit with support with trunk erect and head steady; when supine lifts his head as if straining to sit up; at 1 year he sits erect unsupported, can stand and sometimes take a few steps; at 15 months he

creeps upstairs; by the age of 18 months he walks alone, goes up and down stairs with one hand held, climbs into small chair; at 2 years of age he can walk up and down stairs alone jumps from low objects etc; at 3 years of age he runs well, walks upstairs alternating on feet, jumps on both feet, rides a tricycle steering and raising the pedals; he starts playing with other children; at 4 years of age he skips with one foot, throws ball well overhead, draws a "man" with two points, understands preposition like under, being, beside; by 5 years he can throw a ball accurately, knows four colours, makes comments on pictures, dresses and undresses (without assistance), knows timing, and about left and right; by the age of 8-10 years, he moves freely in the community, can use the telephone, cycle etc., can compare and mention differences between given objects, can count six digits forwards, repeats days of week, differences in attitude toward sex, can describe abstract things etc.

5. Special Development

Senses

Many of the sences are full development at birth, *e.g.,* pain, touch, temperature etc. By about a year, the infant is able to use his eyes to fix the area and his hands to push the stimulus away. Sensation of smell and taste are present in the newborn though the sense of smell is developed to a lessor degree. Taste is well-developed by 3 to 4 months of age and the differentiation of sour, salt, bitter etc., is said to be present then. Sense of hearing is present at birth. By the age of 6 months, the infant can localize the direction of the sound, as also differentiate familiar voices. The presence of vision is shown by the newborn by reflex closure of eyelids. By about 2 months he may recongnise his mother. By fourth month of life the infant reaches for objects. By the age of one year the child is able to distinguish colours. At birth squint is common which persists up to 8 or 9 month of age. Persistence of the squint beyond this age calls for attention.

Speech

The earliest speech is "crying in the neonatal period. An infant aged one month may show differentiation in its sounds for pain and hunger. By 2 months the child makes "cooing" sound. By the age of 1 to 1½ year, he is able to utter monosyllables and then gradually picks up new words in his child–like voice (The *Tutlana* many present until 5-8 years of age). Retardation of speech may be considered to be present if the child is not able to speak by 3 years of age. Speech retardation occurs in children with hearing loss, mental retardation, the over protected child and is delayed development accompanying severe and prolonged illness.

Sleep

It is an important developmental function. A newborn sleeps most of the time during day and night (average 18-20 hours/day). Causes of disturbance at this age are hunger, in fection, pain, discomfort, soil diaper, heat and cold etc. At 6 months to 1 year he sleeps 14 to 18 hours per day. The child may begin to feel the mother's absence and cannot be easily left alone. By 2 to 5 years the child sleeps 10-12 hours a day, takes toys or other objects to bed. Later at the age of 5 to 10 years he sleeps about 10 hours a day. At this age his sleep may be disturbed by faulty training, emotional causes, anxiety and tension etc.

Bowel and Bladder Control

Infants cannot exercise control over their bowel and bladder until they are about two years old and complete control may not be achieved until the 3rd or 4th year of life. Sophisticated and intelligent mothers "train" their infants to use the toilet by about 1-1½ years whereas among the backward mothers toilet training may not be achieved by even 3 or 4 years of age. The child is able to retain urine for a period of 3-4 hours during the day by the age of 1 to 1½ years. Night control is achieved by about 2½ to 3 years. In this matter of toilet and urine training a more permissive attitude may help to prevent tensions and lessen maladjustments in latter life.

Emotional Development

This area of development is very important for a child. Normally the emotional and social development keep pace with the physical and mental growth. Normal children are healthy, happy and well-adjusted. This adjustment is achieved by providing the basic emotional needs for their mental well-being. Various emotions and their development etc. are described in separate chapter.

6. Role of Anganwadi Worker (AWW)

An Anganwadi worker can play an important role in the growth and development of children of her area. For every nine children born normal, the tenth is either born with some mental, physical or sensory impairment or acquires one. The AWW, a local women looking after a population of 1000 can help in early detection of any defect and to prevent any disability. An alert AWW can identity any impairments and check whether the child reaches the different milestones of growth at the normal points of time of his age or not. She can easily notice the following:

Age		*Response*
1	month	Responds to light *e.g.* turns head towards the light or blinks when a torch is held close to the face; focuses eyes.
2-3	months	Smiles and recognises mother, responds to sound *e.g.* turns head towards the sound.
3-4	months	Can hold his head *i.e.* acquires neck support.
4-5	months	Can turn on his side and make gurgling sounds.
6-7	months	Can sit on his own; cuts teeth.
8-9	months	Crawls.
10-12	months	Stands with support and walks with support.
13-15	months	Walks by himself, speaks a few words *e.g.* mama, baba, papa etc.
18-24	months	Climbs staircases, speaks short sentences, eats on his own etc.

However, these milestones are not absolute figures. If these are delayed by more than 1-2 months, the AWW should refer such a child (and those who are born with any visible defect or deformity) to a nearby health centre.

Advice to the Community

There are a few known causes of disability among children and the AWW can use them as talking

points for health education, *i.e.* *(i)* inadequate nutrition of mothers and children including vitamin deficiencies; *(ii)* abnormal conditions before and after birth, like pre-natal damage, genetic factors and damage at birth; *(iii)* infectious diseases; and *(iv)* various other factors including in-breeding and exposure to radiation.

Common disabilities can be *(i)* mentally impaired, deficient or retarded (slow learners; children with specific types of learning disabilities, *(ii)* children who are partially or totally deaf; *(iii)* children who have speech defects; *(iv)* children who are partially sighted, or totally blind; *(v)* children with muscular disability or defects (those who cannot move about normally) and *(vi)* children with congenital or acquired disease of the cardiovascular, alimentary or respiratory systems.

The AWW should ask the following :

(i) Whether the child cried immediately at birth, *(ii)* Whether the child was of a healthy pink colour or some other colour at birth, *(iii)* Whether there was any difficulty during labour/child birth.

If the child had cried only some interval, or if he had a bluish tinge on his body after birth, or if there way any difficulty during labour, the AWW should be alert for delayed developmental milestones and possibilities of some mental impairments among these children.

With a view to prevent mental retardation, the AWW should talk to the community on the following points :

(i) Consanguineous marriage (*i.e.* marriage between close relatives) are to be discouraged; *(ii)* pregnancy in women over thirty-five years of age is also to be discouraged; *(iii)* pregnant women should not take any drugs without the doctor's advice; *(iv)* in case she has to go for an X-ray, she should inform the doctor about her pregnancy; *(v)* ante-natal care specially regular medical checks are to be emphasised; *(vi)* pregnant women should be encouraged to go to the sub-centre/PHC for their delivery or should have a trained *dai* for the home delivery; *(vii)* pregnant women should guard against infections like measles and jaundice; *(viii)* community should be informed about the consequences of sexually transmitted diseases, specially syphilis, *i.e.* mental retardation in the new born baby when a pregnant mother suffers from syphilis; *(ix)* community should be informed about developmental milestones and told to watch for delay, if any; and *(x)* in endemic areas, people should be educated to consume iodised salt in preference to common salt to prevent goitre and cretinism.

Blindness

In order to prevent blindness, the AWW should refer to a health centre any child who: *(i)* has any visible eye defects *e.g.* squint, different size eye-balls etc.; *(ii)* does not respond to light by the end of 1 month of age; fails to focus eyes; *(iii)* stumbles in the dark; *(iv)* has dryness and/or lack of brightness of eyes; *(v)* has wrinkled or foamy patches on the white part of the eye, near the ear; *(vi)* has a white spot on the black part of eye; *(vii)* has a sore or ulcer on the black part of eye, or the entire black portion of eye has turned white; *(viii)* has a foreign body in the eye which cannot be removed easily; *(ix)* has redness or swelling of the eyes which does not respond to treatment even after 2 days; and *(x)* had any eye injury.

Parents should be told about : *(i)* normal response to light by the end of one month and to go to the doctor in case of non-response or failure to focus eyes; *(ii)* foods rich in Vitamin A; *(iii)* eye-

hygiene, especially during an epidemic of conjunctivitis; *(iv)* children should not be allowed to play with pointed objects and with fire or fire-crackers; *(v)* gonorrhoea, a venereal disease in a pregnant mother can infect the new born child's eyes. And if the child is not treated early and properly, he may go blind.

Hearing and Speech Defects

The AWW should refer any child who: *(i)* throws up milk through the nose while being fed; *(ii)* does not respond or turn towards the sound by the age of 2 months; *(iii)* does not utter gurgling sounds by the age of 4-5 months; *(iv)* does not utter short words like "mama", "baba", "papa", by the age of 10-12 months; *(v)* has inability to speak sentences or has lack of clarity of the spoken word by 1½-2 years; and *(vi)* has a discharge from the ear which has not stopped after 2-3 days treatment; also any child with a foreign body in the ear.

Prevention of Accidents

Accidents happen due to carelessness and an environment conducive to accidents. The following leading points should be kept in mind by the AWW and should be told to mothers during health education sessions : *(i)* pins and needles should not be used while dressing a child; *(ii)* lamps and naked flames should not be kept within the reach of the child; *(iii)* electric plug-points should be high and out of reach of the child; *(iv)* materials like kerosene, phenyl, napthlene balls, detergents etc. should be kept out of reach of the child; *(v)* knives, scissors and any other sharp implements should not be kept lying around where children can get at them; *(vi)* stoves, 'angithis' etc. should not be kept on the floor. Children should not be allowed to enter the kitchen while cooking is being done; *(vii)* furniture in the Anganwadi centre or in the home should be sturdy so that it does not fall over the playing child; *(viii)* staircase and steps should be blocked by a barrier; *(ix)* balloons and plastic bags are hazardous because they may suffocate the child; *(x)* tubs of water in the Anganwadi or in the home are dangerous as very young children could get drowned in them. So also stagnant water near the Anganwadi or home is a source of danger; *(xi)* no poisonous plants should be growing near the Anganwadi or home; *(xii)* kite-flying from roof-tops should be discouraged; *(xiii)* children should not be allowed to play with sticks or sharp pointed objects. Care should also be taken when they play with fire-crackers to see that no burns occur; and *(xiv)* children should be taught road safety.

It may be added here that if enough care is taken regarding the above points, it would go a long way towards prevention of disabilities because most accidents, if do not claim life, entail a loss of limb and/or function. Finally, it may be stressed that the parents of disabled children have to be convinced to look after these children and accept them as they are. Their acceptance, love, affection and care will help these children to make the best of whatever they have (Plan of Operations: UNICEF, 1985-89).

7. ICDS and The Nation

Of the thousands of projects started every year in the developing world, very few can ever claim that they have permanently and significantly affected the life of a nation. But that is what the Integrated Child Development Services (ICDS) scheme is now beginning to achieve in India.

From small beginnings just over a decade ago, ICDS now involves over 200,000 people in promoting basic health care and pre-school education for the poorest 20 per cent of the nation's families. By

1990, the scheme will double in size to reach 40 per cent of the deprived children. By the turn of the century, it is scheduled to serve the poor in every village of India.

The heart of ICDS is the *anganwadi*—literally, the courtyard which is given or cheaply rented as a centre for information and help with child care. An *anganwadi* worker is chosen from the local community (minimum age 18) and given three months training; she receives an honorarium of 250 rupees per month for four and a half hours' work, six days a week. With monthly retraining visits from more qualified health officials, the *anganwadi* worker is expected to monitor the growth of children, teach mothers how to prevent and cope with common illnesses (including how to use oral rehydration therapy), educate parents to promote their children's normal growth, organise immunisations and vitamin A distribution, treat minor injuries, organise supplementary feeding where necessary, and act as a referral point for getting more qualified help to children with more serious health problems. All *anganwadi* centres also provide pre-school education and early stimulation activities for children under the age of six.

Because of its scale, the ICDS has become one of the most studied programmes anywhere in the developing world. Many problems have been highlighted—usually to do with uneven quality of training, supervision or referral. But independent studies have also concluded that ICDS is making a dramatic imapct. Malnutrition in ICDS areas ha commonly been found to be 60 per cent less than in areas not yet served by the scheme. Infant mortality has also been reduced to below 90 per 1,000 live births as opposed to a national average of 114—despite the fact that ICDS only operates in poor areas. Immunization rates and school enrolment levels are usually higher, and dropout rates are lower. And there is a small but already noticeable drop in the birth rate where ICDS has succeeded in improving child health and survival.

Although the *anganwadi* is a centre for treatment and referral, its main emphasis is on the promotion of all-round mental and physical development by empowering families with both the knowledge and the necessary support to protect their own children's normal growth. In combination with today's knowledge breakthroughs in the fields of immunisation, breast-feeding, oral rehydration, growth monitoring, weaning and birth spacing, a 'social breakthrough' such as ICDS is showing that it has the potential to significantly reduce child deaths and child malnutrition.

As part of India's 20-point development plan, ICDS is regularly reviewed at cabinet meetings. It is therefore seen as a central part of the nation's drive against poverty. When the scheme does finally reach all the poor families of India, it will still cost less than 1 per cent of the nation's gross domestics product (State of Worlds' Children, 1987).

8. Concept of Fitness and Health Development Through Exercise and Sports

While the period of infancy and early childhood require constant attention of the parents and health workers to keep him free from disease and to watch whether his growth is normal or not, the subsequent period of development *i.e.* late childhood, adolescence and youth is marked by the concept of health development and fitness through exercise and sports. This involves not only being free from disease or disease, it means positive development of various physical and mental faculties, which could be measured in terms of performance *i.e.* winning or loosing a race/game or assessed by a physician (specifically concerned to look after fitness) through various symptoms *e.g.* breathlessness, fatigue,

muscle-aches etc. or expressed by Dyspnoea Index (DI). The examination and assessment by a physician would rule out any ailment, nutritional deficiency or shortfall in physical development etc. Hence the growing child/youth, nursing the ambition to prove his physical fitness, health building or excellence in sports etc., requires the regular attention of a physician.

Breathlessness (Dyspnoea)

It is a common symptom associated with some cardiorespiratory disease (disease of heart or lung), anaemia and obesity. It is not altogether uncommon even in health especially after an unaccustomed exertion *e.g.* running, cycling or climbing upstairs. Onset of dyspnoea often heralds the breaking point of exercise. This is also the chief determinant of exercise endurance of sports-persons. This breaking point is usually expressed by Dyspnoea Index (DI).

Dyspnoea Index (DI)

Dyspnoea Index is defined as follows:

$$DI \frac{\text{Exercise Ventilation}}{\text{Maximal breathing capacity}} \times 100$$

Exercise ventilation is the total amount of air inhaled (and exhaled) in the lungs during exercise (usually per minute) while maximal breathing capacity (M.B.C.) is the maximum amount of air which can be inhaled (and exhaled) per minutes with the subject breathing as fastly and deeply as possible. Breathlessness is evitable when the ventilation approaches MBC. DI of the breaking point of exercise is usually 70 to 90 per cent. A higher DI indicates an appropriateness of breathlessness with exercise. A low DI indicates disproportionate breathlessness to the level of ventilatory capacity—an evidence for factors not related directly to respiratory effort *e.g.* lack of training. DI is higher in trained athletes and sportsmen. The higher the DI, the better the exercise endurance (Jindal, 1988). There are several factors which determine DI. These include body build, training, nutritional status, personal habits (*e.g.* smoking) and cardiorespiratory function. As pointed out earlier, cardiorespiratory disease obviously limits exercise and is an important cause of breathlessness. But here we are concerned breathlessness in health and shall not discuss the disease state.

Lung Function

Breathing is the primary function of lungs. For routine activity the lungs breathe in about 5 liters of air per minute (minute ventilation—M.V.). But they have an enormous capacity of increasing ventilation up to MBC during stress and exercise to cope up with the increase in body demands. Needless to say that this involves extra work for the respiratory muscles and fatigue sets in earlier of course, the onset of fatigue varies in individuals depending upon individual training and adaptation to exercise.

The lung function reflects the function of the whole body. In man there is a linear relationship between lung volume (or lung size) and body stature. The larger the lung volume, the greater the ventilatory capacity. On the other hand, the body stature depends upon height, muscularity and weight. While the lung size and muscularity improves, the excess body fat has an adverse effect on performance.

Some of these factors on which the lung function in health depends are discussed below:

Age and Sex

Lung function is different in the two sexes—females have lower lung volumes and ventilatory function than males for comparable age and height. The relationship of lung function with age is curvilinear *i.e.* it increases with age from early childhood until about 30-35 years age. Therefore, there is a gradual decline in lung function.

Height

Lung function is linearly related to height, implying thereby that for comparable parameters, taller persons will have better lung function.

Weight and Body Surface Area (BSA)

Relationship with body weight and surface area is a bit erratic, especially in adults. Up to a limit, the lung function increases with body weight and BSA (the 'muscularity' effect). Beyond this limit, the body weight affects the lung function adversely ('obesity effect'). This is because the excess body weight interferes with respiratory movements and also increases the work of breathing.

Ethnic and Racial Variations

Lung function differs in different ethnic group. In general, Asian including Indians, Chinese and Pakistanis have 10-15 per cent lower lung volumes than their western counterparts. Our own data suggest that the differences are largerly due to differences in body size. When corrected for height, weight and age, Indians have similar lung volume as the westerners.

Smoking

Tobacco smoking is an important factor responsible for early and rapid deterioration in lung function. It has been shown experimentally that even a single cigarette or bidi smoking increases resistance to the airflow in the airways of the lungs. It can be said without any doubt that smoking is the single most important cause of respiratory disease and reduced exercise tolerance.

Air Pollution

High levels of air pollution, usually associated with combustion of high-sulphur coal have deleterious effects on lung function. Chronic consistent exposure to smoke of domestic fuels like wood, dried dung and coal have similar effect.

Altitude

Some studies suggest an increase in lung volumes at high altitude. This does not necessarily mean that these subjects will have better exercise tolerance since atmospheric oxygen pressure falls at high altitude and will have opposite effect.

Pregnancy

Lung volumes are reduced temporarily during pregnancy especially during third trimester.

Exercise

Physical activity and exercise training improve lung function and DI by several mechanisms. It

improves muscularity including the respiratory muscles, causes acclimatisation of respiratory regulatory centres to higher level of MBC and improved lung volumes.

Of all the factors discussed above it can be easily surmised that there are only 2 or 3 factors which can be manipulated to one's advantage to improve lung function. These are weight control, regular exercise and avoiding smoking. Both excessive weight and tobacco smoking are non-commensurate with most of sports activities. Exercise, of course improves work efficiency and stamina to play without getting breathless of fatigued. It is important to mention that good nutrition with a balanced diet is an essential requirement to maintain weight and muscularity. Since nutrition is a broad subject in itself, I shall not discuss it further except to say that total calories are important, but the food components from which these calories are derived are even more important. In general, a high protein diet is ideal for the sportsmen.

Lung Function in Sportsmen

A high level of habitual activity is a feature of sportsmen. They can be subdivided into those where the high level of activity is maintained from an early age and those where it is acquried during adolescence or is adult life. The former is associated with an increase in the size of the lung and its capacity of transfer gases. Athletes do not comprise homogeneous group. In the participants in the middle-distance events including runners, cyclists and swimmers, the lung vital capacity (VC) is often large. Training of the muscles of shoulder girdle leads to an increase in VC due to increased strength of accesory muscles of inspiration. The increase in VC due to muscle training does confer a competitive advantage.

Oxygen Transport System

Various components are involved in Oxygen transport system. These include the volume, ventilatory capacity, gas exchange capability of lungs, total haemoglobin, the volume and maximal stroke output of heart and general muscularity. The efficiency of this system is determined by genetic factors, environmental factors, nutrition, ill health and habitual physical activity. During childhood, a high level of habitual activity leads to better development of all the components listed above. But during adult life the dimensions are less likely to increase. This obviously stresses the need to initiate habitual physical exercise, right from the early childhood for a more efficient Oxygen transport system. Training also increases the total body haemoglobin and the size of the fibres in the muscles which are trained.

To conclude it may be mentioned that the breaking point of exercise in healthy individual is heralded by breathlessness. Breathlessness is inevitable when an individual's ventilation approaches maximal breaking capacity. Other components of oxygen transport system as mentioned above are also important. Obviously, the efficiency and achievements of sportsmen and women depend upon their 'stamina', which is largely determined by onset of breathlessness. The later the onset, the better the achievements.

Factors which influence and may delay breathless have been discussed in the foregoing chapter.

14
Physical and Motor Development

There is a great correspondence between the growth of the body and the increase in the complexity of behaviour. It is only in the case of the mentally retarded children that we find that while the body grows there is no corresponding development in the behaviour or in thought processes.

Physical Growth

Physical growth is assessed by periodic height and weight measurements.

The Table 14.1 gives the heights and weights for Indian children from birth to twenty years. The data were collected by a research team set up by the Indian Council of Medical Research, New Delhi, between 1956 and 1965. The figures for infants are given in four groups, up to three months, from four to six months, from seven to nine months and from ten to twelve months. There were about three to four hundred infants in each sex in each group. From one year onwards the figures are for each year. There were between 2500 and 3500 boys and a similar number of girls in each age group. Samples were collected from the whole country divided into seven areas. There were children from the rural as well as urban groups and from each socio-economic stratum.

These figures cannot be taken in an absolute sense because there are constitutional variations. Some children are thin, some medium and some are stocky. The figures show that there is a steady increase in height and weight upto about 16 to 17 years.

The figures clearly show that the growth in height and weight are very rapid in the first five years of life. Thus the slender neonate becomes a plump infant during the first year.

The brain grows very rapidly in the first two years. The cerebellum which controls coordination and balance grows earlier and faster than that of the other two divisions of the brain, namely, the forebrain and the brain stem. The cerebellum finishes its growth by the end of the first year. This can be seen in the Figure 14.1. The infant is able to stand with help at eight months, to stand holding furniture at nine months, to creep at ten months, to walk when led at 11 months and can stand up by holding a chair at 12 months.

The brain as a whole is about 75 per cent of the adult weight when the child is three years old and about 90 per cent by the age of six.

Table 14.1. Mean Height and Weight of Male and Female Children (All India)

Age group	*Mean height (cm)*		*Mean weight (Kg.)*	
	Male	*Female*	*Male*	*Female*
3 months	56.2	55.0	4.5	4.2
4-6 months	62.7	60.9	6.7	5.6
7-9 months	64.9	64.4	6.9	6.2
10-12 months	69.5	66.7	7.4	6.6
1 year	73.9	72.5	8.4	7.8
2 years	81.6	80.1	10.1	9.6
3 "	88.8	87.2	11.8	11.2
4 "	96.0	94.5	13.5	12.9
5 "	102.1	101.4	14.8	14.5
6 "	108.5	107.4	16.3	16.0
7 "	113.9	112.8	18.0	17.6
8 "	119.3	118.2	19.7	19.4
9 "	123.7	122.9	21.5	21.3
10 "	128.4	128.4	23.5	23.6
11 "	133.4	133.6	25.9	26.4
12 "	138.3	139.2	28.5	29.8
13 "	144.6	143.9	32.1	33.3
14 "	150.1	147.5	35.7	36.8
15 "	155.5	149.6	39.6	36.8
16 "	159.5	151.0	43.2	41.1
17 "	161.4	151.5	45.7	42.4
18 "	163.1	151.7	47.4	42.4
19 "	163.5	151.7	48.1	42.4
20 "	164.1	151.7	49.2	43.5

Source: "Growth and Physical Development of Children," All India—Indian Council of Medical Research, New Delhi, 1968 (mimeo).

This clearly shows the great need for proper nutrition during infancy and early childhood. Malnutrition affects the growth not only of the body, but even more of the brain. Studies have shown that malnourised children score lower in intelligence tests than the well-nourished children. The infant needs not only high calories but, more important, protein enriched food.

Motor Development

The infant's world expands and the stimulation increases greatly when he learns to move about by the end of the first year.

Although the neuromuscular apparatus involved in vision is not perfected at birth, the neonate is able to see light, dark and colour and his visual acuity is remarkably good. In a few days he is capable of visual pursuit movements. He can follow moving lights, indicating that the eye muscles are sufficiently coordinated to track stimuli. Although the eye movements are coordinated, the two eyes do not converge on the same stimulus at birth. The binocular fixation occurs at about 7 or 8 weeks. By two months he begins to accomodate to objects and by 4 months his ability to focus on distant objects is about as good as that of an adult. Even by 16 weeks the infant is capable of making adjustments of his eyes so that he can focus on near and far objects.

Facial and mouth responses. The mouth of the newborn child is closed. He opens it when he is yawning or coughing. There are lip movements in response to tactual stimulation. Sucking responses occur spontaneously or in response to tactual or taste stimuli. Smiling occurs spontaneously of after feeding or in response to tickling under chin.

Among the oral responses at this stage are crying, swallowing, coughing. Occasionally there is also cooing or holding the breath.

Head movements. There is upward head movement when the newborn is placed on its stomach. It also makes the upward head movement when its nose is held or when a bright light is flashed before its eyes. Downward movements of the head are rare at this age. It can turn its face to the side in response to tactual stimuli, when its cheek is touched, for instance. In a few infants there is also this movement in response to him light or to some sound. The infant turns its face from side to side during hunger or when it is crying or when it is placed on its stomach.

Arm and leg responses. Arm flexion can be evoked by pricking with a blunt point or by a sudden slight tap. Flexion of the leg can be elicited by stimulating the foot. When the child is crying it kicks; there is flexion land extension of both legs.

Thus it can be seen that careful studies have shown that the newborn can respond in a number of ways to stimuli, its movements are not limited merely to crying, sucking and waving of arms and legs, as it is generally assumed.

Development Norms

Studies have shown that there is a clear order in the development of behaviour. The sequences of behaviour change can be predicted with great success.

Figure 14.1 gives a picture of the stages of motor development and the average age at which each stage appears.

By the time the child is one month old he can lift his chin when he is put on his stomach; he can lift his chest up by two months. This shows how the development of the head and chest muscles takes place first.

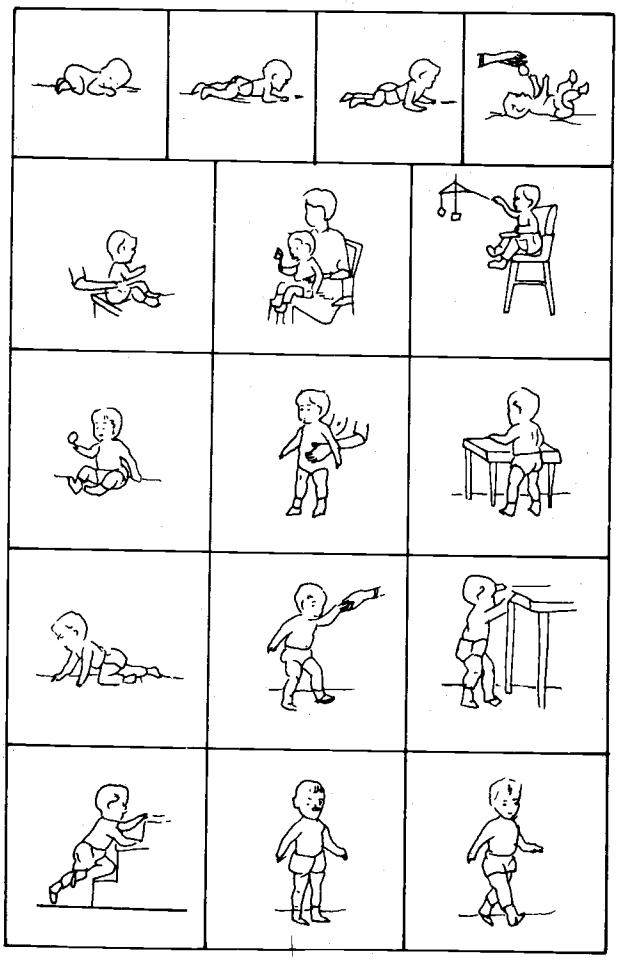

Fig. 14.1 The Motor Sequence. (After Shirley, 1993)

In the next stage he gains control over the arm and waist muscles. By three months, he tries to reach a ball dangling before him when he is lying on his back. By four months, he can sit with support. By five months, he cannot only sit on the lap of his mother but he can also grasp the toy given to him. This is the time of great joy to the mother and grandmother. By six months, he can extend his arm and grasp the dangling object in front of him when he is sitting on a chair. By seven months he has gained enough control over his waist and chest muscles to sit alone by himself.

From eight months the third stage of motor development starts. He can now stand with help from the mother. By nine months, he can stand with the support of a chair. By ten months, he has gained enough control over his back muscles and his leg muscles so that he can creep and move about the house on all flours. By eleven months he can walk when he is led by the mother. By twelve months,

he can pull himself up and stand when he is near a chair or a small stool. By thirteen months, he can start climbing the stair steps; to come down the stair takes a longer time. By fourteen months, he can stand alone and by fifteen months he can walk alone.

Thus, the studies show that there is a regular order in the development of the control over the muscles of the body and this follows the cephalocaudal—from heat to tail—principle discovered in the development of movements in various animals also.

A word of caution is necessary in using these norms when we are considering the rate of development in a given child. Though the order of sequence will be observable, there may be variations in the age at which the motor development takes place. A few children may stand up by ten months and walk by twelve months. On the other hand, some children may stand up by fifteen months and walk alone by eighteen months or later. This should not be interpreted to mean that the child who stands up earlier is more smart or the one who stands up later is more retarded than the normal children. These norms give only the "average" time. An average is calculated on the basis of summation of varying ages. The norm gives an indication of the time around which certain stages in motor development are reached.

Fig. 14.2 indicates the stages in the development of grasping. At the age of 16 weeks the child is not even able to touch an object that is lying in front. By 20 weeks he can just touch it and try to hold it using his palm and fingers—this is called "primitive grasp" like in the monkeys. By the time the child is 24 weeks, or roughly six months old, he can grasp the object more securely. Around this age (24-28 weeks) there is crude palming pattern in which the thumb is inactive. Next (32-50 weeks) comes the period during which the fingertip and forefinger grasping develops. By the time the child is one year old he can grasp the object with his forefinger and thumb.

This finger thumb opposition is of great significance in the development of culture. This is one of the great differences between the higher apes and man. It may be said in a broad way that the apes have not been able to build up a culture because, they are not able to *(a)* stand erect on their legs, *(b)* grasp objects by finger thumb opposition and *(c)* use speech to convey ideas.

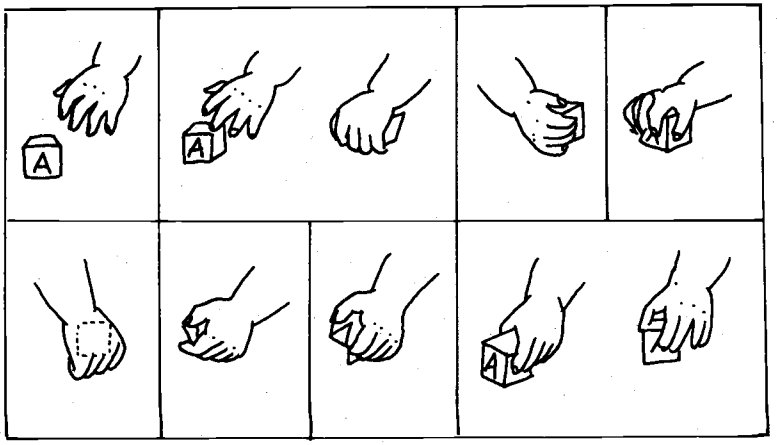

Fig. 14.2 After Halverson, M. M., (1931)

However, even though the one year old child is able to grasp objects by finger thumb opposition, generally the illiterate peasants and tribal people are not able to use this ability, because they generally grasp big objects which do not require this movement. The unskilled, illiterate worker uses the "palm grasp" when he holds the pickaxe or crow-bar or shovel. He finds it hard to grasp smaller objects using the "finger-thumb grasp." When the illiterate adult is asked to hold the chalk piece or pencil, he finds it quite a hard task. This is not because he has no ability; it is because he has not used this ability. Because he is not used to handling small objects, he takes sometime to learn to hold a pencil. Probably this is one of the reasons for the dislike of the illiterate adults to attend the adult literacy classes.

Both motor coordination and strength increase with age. Until puberty boys are stronger than girls. For a couple of years afterwards girls are as strong as boys, because the girls mature earlier. After that the boys regain their mastery and are stronger than girls.

The development of motor skills depends not only on neuro-muscular maturity but also on environmental opportunities, particularly the availability of equipment, the opportunity to observe and imitate other children and the opportunity to experiment. If a child lacks opportunities for exploration and practice or if the parents in hibithis activities through over-protection, his motor abilities will be poor.

Studies on several thousands of children between two and seven years of age have given information regarding the growths of several motor activities. Jumping is a motor skill well developed in about 40 per cent of the children of three years of age; more than 80 per cent of them jump well by the time they are five years old. Climbing is an activity well established in 50 per cent of the children of three years of age; by the time they are six years old more than 90 per cent are able to climb well. When the child is two and a half years old he has practically no skill in ball throwing; at four years of age about 20 per cent can throw a ball well; by five years nearly 75 per cent gain the skill. In ball throwing the principle of general to specific, gross to refined control, is illustrated. The earliest attempts at ball throwing involve mass movement of the entire body; gradually the movements become more specialised and the use of both hands gives place to the use of one hand. This principle can also be observed in the way in which the child learns to ride a tricycle. In the beginning the child uses his whole body; gradually he learns to hold the handle lightly and move his legs smoothly. As regards the development of tricycling, studies show that hardly one-fifth of the children can ride when they are two years old; more than three-fifths learn the skill by the time they are four years old.

Indian Studies of Motor Development

Recently two large-scale studies on motor development of children up to five years of age have been made. The Baroda study of the motor development of infants has been made from one to 30 months and the pan-Indian study of the motor development of children from 30 months to five years by the National Council of Educational Research and Training. A brief description of the results of the two studies is given below.

Baroda Study

The Baroda study (1971) is a longitudinal study of motor and mental development of children from one to 30 months. The Bayley motor scale consisting of 67 items was used. The study was

conducted on 75 babies of upper socio-economic class who were registered at birth in a nursery school; the longitudinal testing was done between 1963 and 1969. The cross-sectional study took samples of urban lower socio-economic class and from all classed of rural infants of one to fifteen months of age.

During the first month almost all children (67 per cent) could lift their head, make postural adjustment when held at shoulder, indulge in arm and leg thrust at play and make lateral head movements. During the second and third months they could hold their head steady and could sit with support. During the fourth month they could turn from back to side and when lying prone they could elevate themselves by arms. By fifth month they could sit with support. In the sixth month, they could turn from back to side. There was partial thumb opposition and efforts to sit in the seventh month. They could sit alone in the eighth month and also attempt to secure pellet. They achieved complete thumb opposition in the ninth month and pull to standing position and even make early stepping movements. During the 10th month they could roll from back to stomach. In the 11th month they could stand up by support of furniture, make stepping movements and hold the pellet. In the 16th month they could stand alone; they could throw a ball in the 17th month and they could walk alone in 18th month. They could walk backwards in the 20th month. By 25th month they could walk upstairs and downstairs with help. By 30th month they could try to stand on the walking board.

Developmental Norms for Indian Children (1971)

The Department of Educational Psychology of the National Council of Educational Research, New Delhi, organised and conducted a national study to obtain developmental norms for Indian children.

The study was based on samples in Ahmedabad, Allahabad, Bombay, Calcutta, Delhi, Hyderabad and Madras. Data were collected on the lines of Gesell's study, on children 2.5 to 5 years of age. The sample consisted of 30 boys and 30 girls at the age 2.5, 3, 3.5, 4, 4.5 and 5 years, among urban, rural and industrial groups in each of the seven centres. The urban children were from those enrolled in nursery schools charging high fees; the industrial and the rural children were not attending any nursery schools at the majority of the centres. The total sample included 6997 children.

The motor tests were in four areas : (1) ball play; (2) standing, walking and running; (3) climbing, skipping hopping and jumping; and (4) handskills.

1. Ball Play

Spontaneous throwing. From 2.5 years the majority of the urban boys and girls throw the ball with right hand while the majority of rural and industrial children use both hands. The industrial group started using only right hand at 3 years and the rural at 3.5 years. The instantaneous release of the ball was found in all groups at 2.5 years. The mean distance thrown increased with age. The urban and industrial children throw the ball to a distance than the rural children.

Kiching the ball. The boys of all the three groups kick the ball to the front at 2.5 years and the girls 3 years. Kicking right is at 3.5 to 4 years boys and 4 to 4.5 years in girls; kicking left is at 4 to 4.5 years in all the groups.

Catching a ball. The urban boys and industrial girls are able to catch the ball thrown chest high from 4 years; urban girls, the rural boys and girls and industrial girls, at about 4.5 years.

2. Standing, Walking and Running

Standing. The urban groups stand on one foot at 2.5 years but the rural and industrial groups stand at 3 years.

Standing with feet crossed. The urban group does this between 2.5 to 3.5 years; the rural and industrial group between 3.5 to 4 years.

Walking on board. All three groups are able to walk on 6 cms., and 8 cms., boards from 2.5 years. Urban children can walk on 4 cms., board by 3.5 years. The rural and industrial groups walk on 4 cms., board around 3 years. The urban groups walk on 3 cms, board from 2.5 to 3 years; the rural and industrial groups by 3 to 3.5 years.

Walking in a straight line. The majority of urban boys walk on a straight line from 3 years; the urban girls from 3.5 years; the rural boys from 4 years.

Walking with a glass of water. All groups are able to do this by 2.5 years.

Running. All groups are able to run from 2.5 years. Girls take longer time than boys. Rural boys are slower than urban and industrial boys.

3. Climbing, Skipping, Hopping and Jumping

Ascending and descending steps. All groups are able to do this by 2.5 years. Urban boys ascend using alternate feet by 2.5 to 3 years; the urban girls and industrial girls at 3 years; industrial boys and rural children at 3.5 years. Time taken to ascend steps decreases with age. All children descend steps by 2.5 years. The use of alternate feet is at a later age. The urban boys and industrial girls do this at 4 years, the urban girls at 4.5 years and the industrial boys and rural groups around 5 year.

Skipping. Only urban girls are able to skip by 2.5 years. All other groups do it by 4.5 years. Some children in all the groups do not skip even at 5 years.

Hopping. The majority of urban group can hop like a frog from 2.5 years; the rural and industrial groups by 3 years. Time taken for hopping decreases with age.

Jumping. Urban boys and girls, land industrial boys jumps from a height of 40 cms., from 2.5 years; the industrial girl and rural groups by 2.5 to 3 years. The urban groups can jumps from 90 cms. height by 4 years and the other groups at 4.5 to 5 years.

Long jumps. The urban boys start at 2.5 years and the other groups from 3 to 3.5 years.

High jump. The urban boys start around 3 years; the urban girls around 3.5 years and the industrial and urban groups around 4 years.

4. Hand Skills

Threading beads. All groups are able to thread both large and small beads from 2.5 years. Time taken to thread beads decreases with age.

Cutting. The urban children can cut on line by 3 to 4 years, the rural groups by 3.5 to 4.5 years and industrial groups by 4.5 years.

Thus, the results, show that between the ages of 2 and 6, the child is able to move about and manipulate like an adult. He can feed himself. He can run and climb. He can hop and jumps. He can

ride the tricycle and move about near the house.

For harmonious development, movements experiences and education are significant during the pre-school years. Children grow up well if they have a physical environment that makes it possible for them to run about, jump, climb, etc. They will use the space and equipment for developing and perfecting the basic movements of walking, running, crawling, jumping, climbing, pushing, pulling and the skilled movements of throwing, catching, tricycle riding, swimming and so on. So what they need is the equipment. Music and dancing provide the links between movement, emotional expression and self-awareness.

The results show the influence of environment on motor development. The urban children are able to fare better in most of the tests than the rural children.

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15
Motor Development

Introduction

In its simplest terms motor development refers to movement. It includes the waddling, clumping, ungainly movement of the toddler, the fine skill of the ice skater and the enormously intricate, delicate tough of the glass blower coaxing a vessel from the end of a tube.

It is not one of the more glamorous areas of child development. It lacks the obvious intellectual bite of epistemology, there is little of the controversy that surrounds Freudian theroies of personality and, at first glance, it may seem less relevant than topics like memory or perception. Nevertheless, the student of child development who does not have a good grasp of motor skills will function like a car missing on one cylinder.

Some Definitions

Motor development: The development of control over bodily movements through the coordinated activity of the nerve centres, the nerves and the muscles.

Skill: Purposive behaviour requiring the coordination of sensory information and muscular responses to attain some specific goal.

Gross motor behaviour: Involves the large areas of the body used, for example, in walking or swimming.

Fine motor behaviour: It involves smaller muscles and includes such skills as grasping, catching and writing.

Characteristics of Motor Development

1. There is generally a *consistency in the sequence* in which skills emerge in different parts of the world. This means that a degree of prediction is possible—for example, we may confidently say that a baby who sits early will walk early. (A formula for predicting the age of walking is to multiply the age of sitting by 2.)

   A word of warning: motor development is not in itself a good predictor of general intelligence. That is, there is no reason to believe that a child who is advanced in walking will be

outstandingly academic in later years, or that a child who is a little slow in walking will necessarily be backward in school.

2. *Stages of development* are observable—in everyday language, one cannot run before one can walk.
3. Gross motor development follows the *cephalocaudal law* mentioned—that is, development goes from the head downwards.
4. Fine motor development follows another law mentioned—the *proximodistal law*, that development goes from near to far.

Locomotion: an Example of Gross Motor Development

As an illustration of the cephalocaudal law, the first stage in the sequence leading to locomotion is head movement. Some head turning or raising is expected by about the third week but it is probable that these movements are reflexive rather than purposive. What appears to be a purposive movement is reached around the fourth month when babies begin to lift head and chest from a prone position—that is, when lying on their tummy. This is a critical stage because it immediately allows an increase in the available visual field.

Between four and six months comes the ability to roll from back to tummy and *vice versa*, followed by sitting without support which is usually achieved by seven or eight months.

Before they stand, babies have almost always adopted some means of getting about: they may *hitch* (shuffle along on their bottom) or crawl (pull themselves along by their arms with tummy on the floor) or *creep* (move with both hands and knees on the floor).

Standing alone is preceded by standing with support. The first moment that the child rears up alone, gazes around and thumps down again is memorable, for from then onwards the world opens up.

Fine Motor Skills

The most important point to note about fine motor skills is the crucial part played by the *thumb*. The development of the hand and the brain go together, the development of the role of the thumb is a more refined aspect of the general proposition. One can substantiate this from everyday observation: watch the part played by the thumb in the next movement you make involving a hand.

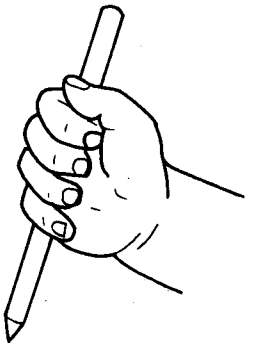

Fig. 15.1. Palmar grip

The development of the *pincer grip* is a sequence that is given much weight in textbooks and developmental scales, correctly in view of the increased versatility that this grip provides. The first grip that most children employ is *palmer*—that is, an object is swept up by all the fingers into the outside side of the palm. A palmer is shown in Fig. 15.1. Gradually the grip shifts towards a position in which the thumb is in opposition to the other fingers, culminating in the precise grip illustrated in Fig. 15.2.

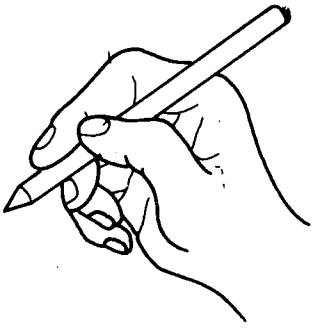

Fig. 15.2 Adult grip.

Two characteristics of skilled movement, its *purposive nature* and the *coordination* of *sensory information*, are illustrated in an example originally put forward by *Kevin Connolly*: he analysed the skill involved in eating an egg.

(Before reading further it may be interesting to try to list for yourself the skills that this activity encompasses.)

Connolly pointed out that the child must be able to sit up with head and back erect, must have some idea of what is being aimed at and must be able to pick up a spoon and hold it correctly. Next the whole of the arm must be under control in order to bring the spoon to the egg; too much force and the egg will be spilt. Delicate control is also required to break the egg and to load the spoon. Then a whole new sequence follows to take the loaded spoon to the mouth. A further sequence comes when the egg is put into the mouth and the spoon removed.

Handwriting

A second example of fine motor skills, extending to an older age range, is that of handwriting. *C. Jarman* has observed seven stages of writing which have been linked to approximate age ranges. The teaching of writing is often neglected in schools today; Jarman's conclusions might, therefore, be of considerable practical value.

Up to 5 years	Copying is frequent.
5-6	Children learn to write their own name with large writing and some reversals (for example, *b* for *d*).
6-7	The alphabet can be printed on request but there is still some reversing.

7-8	Most children can now write and most attempt to make their letters smaller. There is some evidence of consciousness of design.
8-9	Some, but not all, letters are joined. This can lead to untidiness and an apparent deterioration in ability, made worse if the child is also mastering skills of punctuation and spelling.
9-11	Writing is now well established with each child's individuality beginning to show. It is essential that teachers allow for individuality; for example, if a child writes naturally without joining letters this should be accepted.
11+	Individual styles flourish and should be encouraged.

Throughout due allowance should be made for left-handers, who do not always easily adapt to a left-to-right style.

Handedness

There are two criteria for the determination of handedness: which hand is preferred and which is the more skillful. Most people throughout the world are right-handed by both criteria, an approximate figure being 92 per cent for adults. The reasons for this overwhelming preference are not fully understood.

In their early months babies are *ambidextrous*; that is, they use either hand indiscriminately. By eight months most show some slight preference for the right hand but there may be no clear-cut choice even up to the end of the third year. Between four and five, there are indications of which hand will be preferred.

It was once common to try to force all children to use the right hand for there are undoubted advantages of following the norms of the majority, especially in countries where reading and writing go from left to right. Now, however, a more liberal attitude pertains, at least in Great Britain. There is, incidentally, no evidence that left-handers have any more than their fair share of reading and spelling problems. Anyone wishing to pursue the topic further should consult *Margaret Clark's Teaching Left-Handed Children* (University of London Press, 1974).

The Origins of Motor Skills

Every healthy baby acquires the ability to sit, stand, walk, run, reach and grasp—whether or not adults offer conscious training. Voluntary actions appear to be built on a *substrate of inherited reflexes* and the traditional explanation for motor development is that it is a maturational phenomenon.

Supporting the part played by maturation is evidence that practice plays relatively little part in the development of early gross motor skills. Arnold Gesell and colleagues focussed on this question in twin studies in which one twin was given a great deal of practice in a particular skill. It was found that providing the other twin was given a brief period of practice the two achieved much the same final level of competence. Further examples of the need for only limited practice come from observations of babies carried strapped to the mother's back; for example, the Hopi Indians and Nigerians. These babies develop walking skills at normally appropriate ages. It must be noted, however, that they do not spend all their early lives on someone's back; there is a period each day when they are taken off.

Some evidence *against* the maturational hypothesis comes from observations of babies brought up

in institutions. In 1969 W. Dennis reported on some children whose opportunities for movement had been severely restricted. They were retarded in walking by up to 12 months and were equally backward in other motor skills. Whether one can legitimately generalise from any deprived children to the normal population.

Ethnic differences may seen to provide a key to the question of maturation versus practice: several researchers have reported that black children are more advanced that others in motor development during the first year of life. Mary Ainsworth found this in Uganda and Nancy Bayley did the same in America. The maturational theory explains the differences in terms of genetically determined differences in the rate of the development of muscles and the nervous system.

But, as usual, there are alternative explanations. Another Ugandan study reported on a group of children whose parents had adopted Western ways: children were kept in cribs more than others brought up traditionally and were carried less. Compared to more traditional families the children were actually handled less. The children of the more Western-orientated families had motor milestones closer to those of Caucasian children. A similar study carried out in America by J. R. Williams and R. B. Scott compared black infants from poor backgrounds with those from middle-class backgrounds. The poorer families restricted their babies less but regardless of economic status there was a relationship between the encouragement and the realisation of walking. Finally, from Mexico, a study of another group of children carried on their mother's back has found them to be more re-retarded in walking. The clue to this group's poor performance may be the fact that they were heavily swaddled, often with their faces covered.

The conclusion, then, seems to be that one should look further than maturation alone if one is fully to comprehend the origins and pattern of motor development. A possible direction in which to look follows in the next section.

The Development of Skills and the Computer: an Analogy

Computer language is a possible aid in coming to a conclusion on the place of maturation in the field of motor development. Computers function with two major variables: *hardware* and *software.* The former is the nuts and bolts of the machinery itself, the latter refers to the programme used to direct the machinery. In human terms:

Hardware can be used to refer to body: the muscles, bones and the nervous system.

Software refers to the person's ability to understand what is required.

Support is given to this approach by a consideration of certain ways in which the computer and human behaviour seem to mirror each other. One example of this is the *subroutine,* a self-contained section of a programme used for repeating bits of that programme. If it could be shown that human activities used subroutines then it would be worth pursuing the computer analogy further. Return to the child eating an egg. It is possible here to discern several subroutines, grasping an egg being one of them, which are combined in this programme.

As Connolly has pointed out, the variety of subroutines is not enormous, but we are enabled to do so much with them because we learn to combine them. There are, after all, only 26 letters in the alphabet but they combine most effectively. If children are to learn to use subroutines in the most

efficient combinations they have to practice, but practice in this context does not mean mere repetition; it is the constant search for optimal solutions to appropriate problems. The child may have learned how to use a spoon for an egg, but there remains the need to practise the skill in other contexts.

Two other aspects of computer programmes are relevant. The first is the need the programme has to build in *feedback*; that is, the sending of information back to the directing centre which will indicate what modifications are needed. The second is *feedforward*, the anticipation of what is going to occur so that the outcome of a certain action can be computed before it happens. A moment's reflection on human skills will reveal how both feedback and *feedforward* play their part.

The computer analogy should not be pushed too far; humans are not machines and we do not have programmes imposed upon us. Nevertheless, to see the body as hardware and cognition as software helps to some extent to resolve the problem we started out with.

The Development of Characteristics of Performance

There are wide individual differences in the development of all motor skills. Opportunity, temperament and motivation partly explain these variations, but only partly, for many children have all three of these and yet fail to become the sportsman, musician or painter that they aspire to. Although it is not possible to explain all differneces, some trends across age can be discerned:

Speed of action: The very young both act and react more slowly then older children and adults. Slowness of reaction is of importance when considering motor skills for it implies a slowness in processing information (a central activity if we are to follow the computer analogy). Experimental work using tasks like card-sorting has demonstrated steadily increasing changes in the speed of performance with age from around four years to adulthood.

Strength: as such is not required for most everyday activities, although increasing strength clearly widens the range of skills available. More important developmentally is the ability to control force: compare the five-year-old pressing on paper while writing to the dentist delicately probing a tooth.

Accuracy: is less clear-cut developmentally. Possibly the increased efficiency of older children is more related to speed of work and to the use of more mature strategies.

Conclusion

The original idea that motor development is an unfolding of skills that depend only on maturation for their appearance can no longer be held. If we are fully to understand motor skills we must pay attention to the nature of purposive behaviour, we must be able to use the analogy of the computer and we must always by aware of the overriding principle of the child working within a system, the system in this case being first the family, then the wider culture.

16
Motor Development in Children

The history of evolution has been a continuous process towards acquiring finer coordination and characteristics of skilled motor movements from the gross ones. This might have been one of the most important aspects of the "survival of the fittest" in Darwinian terms. The development of the manipulatory skills has to a great extent enabled man to control his natural and social environment. Coupled with this the development of ideational skill has determined the growth of this intricate human civilization.

It is often said and well accepted that the thumb and forefinger opposition precision in man, the only organism to have it, has enabled him to build the tools and wield them, and thus create.

Though in modern life man has not used his motor manipulatory skills as much as he has to use his ideational skills for social and physical adjustments, it is extremely important for the growing child from a psychological point of view in his social adjustments. In fact, substantial research evidence exists to support this view.

The first scientific and systematic attempt to study and monitor the motor development in children was done by Galton in the 19th century. He was primarily interested in establishing in such motor abilities as strength and certain aspects of endurance and proposed the hypothesis of normal distribution of physical and psychological traits. Now the famous "law of fitial regression" was also his. Extension of Galtons studies were carried out by Cattel and Whipple in later 19th century and early 20th century.

Owing to the simplicity of measuring instruments or devices like the time and distance scales developed and refined by physical sciences, the scientific studies of motor development in children preceded the enquiries with other aspects of growth, namely psychological and social. The instruments for the measurement of psychological aspects of growth had not yet been developed and standardised. In recent times, the scales are in their process of development to aid the measurement not only of gross motor activities but of finer and more complex aspects, with factor analysis, the elementary components of motor activities are being explained, adequate norms are being developed and the relationships of psychological aspects of growth with that of motor development are being isolated.

Scientific Investigations of Motor Development

In recent years two dichotomous explanations of the behaviour development of children have been in existence for sometime.

The first of these rival themes, as elucidated by Watson[1] explains behaviour development atomistically, in terms of a "process of integration and organisation of reflexes. The second attempts to explain behaviour in terms of individuation of responses." It is often known as the organismic approach.

The last few years' researches have indicated that a major portion of the motor development has its roots in maturation, and they are independent of any specific cultural or child rearing practices. Of course, the maturation and the general health of the child (nutrition) effects its normal motor growth patterns and crossroads of development. Certain psychologists like Gessel, got so impressed by the orderliness and universality of these motor growth patterns or development trends in children that they ascribed all behaviour changes to hereditary and maturational growth, without ascribing any importance to the role played by environment and learning processes. Many development psychologists disagree with the above view. Thompson[2], in particular, denies the omnipotence of maturational control in all psychological growth and behaviour change, especially in higher mental processes and complex social adjustments. The controversy still persists on the extent of contribution of heredity and maturation, on one hand and environment and learning on the other on the psycho-physical dimensions of development. That normal motor development of a child depends upon proper maturation of the motor structures and mechanisms, as also upon the proper physiological and muscular growth of the child has been amply highlighted by evidences from recent researches.

While a considerable part of motor development has its roots in maturation, the finer aspects of motor manipulatory skills depend a lot upon cultural practices, child rearing practices and the environmental experiences in which the child grows up and learns to adjust. The precondition to the acquiring of the sensory-motor skills is the normal development, to a certain degree, of the neuromuscular and sensory mechanisms of the child. Until and unless this basic physiological development occurs the child will feel impaired in his socio-physiological and physical adjustments to his environment. As basic physiological growth is essential for adoptive motor behaviour, the general health, nutrition and scope of unrestrained physical environment is essential for the early years. That malnutrition can hamper motor development is well-known.

The scope of researches in the areas of basic motor development is extremely limited. It has been substantially proved that the development patterns which emerge in early childhood are to a great extent maturational and are devoid of significant effect of child rearing practices, cultural patterns or learning. After birth an infant has the capacity to react to any environmental stimuli but the reaction in terms of expression of behaviour is extremely limited and diffused. This early reaction of the child is due to the in built neuro-motor reflexes it is born with, they lack the coordination to deal and adjust with his immediate environment. These sensory-motor reflexes are just physiological reactions to certain pleasant and unpleasant stimuli. As the process of growth advances, these reflexes combine and meaningful reactions to adjust and physically manipulate the environment to suit one's purpose emerge. In fact, as a gradual process, from aimless motor movements emerge definite, specific and meaningful physical movements aimed at specific functions. Over the year it has been observed that motor development in children follows certain symmetrical and regular trends. The same pattern is observed in all cultural and social milieu. These 'trends' in motor development have been discussed in detail by Thompson (1952). He explains the trends of motor growth. They are:

(*i*) Mass to specific trends

(*ii*) From large to small muscles

(*iii*) Cephalo-candal and Proximo-distal trends

(*iv*) Bilateral to unilateral trends

(*v*) Maximum muscular involvement towards minimum muscular involvement trends

(*vi*) General sequence of motor development

(*i*) *Mass to specific trends*: During the first few weeks, the responses of the child tend to be gross *i.e.*, involving greater part of the organism but later shows gradual patterning and specification of movements. In other words, in the initial days and whole neural system is seemingly active in producing movements and in due process there is evidently a progressive delimitation of these mass movements and they become specifically adjustive and selective.

(*ii*) *Large to small muscles*: Control and coordination of large muscle groups precedes that of smaller ones. Experimental evidence regarding motor tasks, such as tapping, head-stringing etc. have substantiated this trend.

(*iii*) *Cephalo-candal and Proximo-distal trends*: According to this trend, motor coordination and control starts with the head region and spreads progressively down through the trunk to the lower end. Gessel and Ami, in their study of probe behaviour of walking, reported, "the general direction of this on to genetic organism is unmistakably Cephalo-candal. The infant can lift its head in the first week of life; not until the end of the first year does he stand on his feet."

The proximo-distal trend explains the pattern of motor development in terms of development from the central to the peripheral regions, *i.e.*, the parts close to the torso are the ones in which motor control develops first and it progressively proceeds to the distal portions.

(*iv*) *Bilateral to unilateral trends*: Bilateral movements give way to unilateral ones in the progressive growth of motor development, according to this trend. Karr[3] in his study of preference of hands of growing infants found a high positive correlation between consistent use of the preferred hand and chronological age making it evident "when a child grows older, he uses one hand more consistently."

(*v*) *Maximum towards minimum muscular involvement trends*: This pattern of development of motor activities infact overlaps two initially discussed trends and means that from gross motor movements which involve a large number of muscles the child's activities, in the process of growth becomes progressively specific, involving minimum possible muscles. The gross motor movements also have cross-purpose involvement of muscles and thus more expense of energy, which reduced by the selective muscle use at a later point of development. Initially it was Burnside[4] who observed that "the first stages of locomotion are characterized by an over production of movement."

(*vi*) *General orderliness of motor development*: All these trends see to indicate an orderly sequence of the development of motor skills in children. The controversial study of Shirley[5] of postular

locomotive development of 25 infants during the initial two years of life, helped identify five sequential phases:

1. Passive postural control;
2. Acline postural control of the entire trunk;
3. Acline efforts at locomotion;
4. Locomotion by creeping; and
5. Postural control and coordination for walking.

Intense observations showed that each separate stage was a prerequisite for the immediately succeeding stage in case of every baby under study and providing at the same time certain variations or shirts in the stages. Bayley[6] in a critique to Shirley's experiments on the basis of his own, observed that this apparent sequence in postural and locomotion development observed by Shirley's does not depend on a regular order to appearance of specific abilities but on a rapid increase in the whole level of ability.

On the other hand, McGraw[7] has suggested more general phases of development of any motor skill, thereby placing orderliness of motor development is a less specific matrix than Shirley. It is the outcome of her experiment with twing under differential environmental conditions. The phases described by her are as follows:

1. Initial stage immediately prior to the emergence of the growing action pattern;
2. First somatic measurements which are inchoate and ephemeral, often masked by diffuse, general activities;
3. Partial incomplete movements which become more definite and expensive;
4. The inhibition of this exaggerated movements by the emergence of other movements until the former becomes restricted toils most specific economical form;
5. After one movement pattern has reached a certain degree of definiteness, it may unite or integrate with other patterns of motor development.

The Stages of Motor Development

Though 'basic' motor development does not depend upon socio-cultural factors, it definitely is determined by the nutrition and general health of the child. Proper nutrition brings in proper and timely maturation of the neuro-muscular mechanism so vital for motor activities.

In this regard there could be differences in the different stages of motor development at a particular age depending upon which economic group the child belongs, the kind of nutrition the child gets and his general health status.

While researches have been conducted in the West to determine the stages of motor development of children, in India fewer researches have been conducted in this regard. The possibility that the standard motor manipulative development stages of the Western child not conforming to that of their Indian counterpart exists. Most of the researches in India till now have used highly localised samples

thereby limiting their findings to specific groups and as a result the findings do not lend themselves to generalisations.

The following trend in motor growth has been identified in the development of children. During the first four months the infant gains control over the twelve oculo-motor muscles. In the next three months, this regulating ability starts to move downwards and the child gradually comes to control the muscles which support its head and not yet those that move his arms.

During the seventh to tenth month the muscles relevant to the control of the trunk and hand becomes manipulable, thereby making it possible for the child to handle objects with the hands. Upto the age of one year his feet, legs and fingers come under muscular control and finally acquires the ability to stand. The ability to maintain an upright posture comes after a long series of preparatory coordination. Even when the baby is ready to walk, he needs varying amount of stimulation and assistance from others before he masters the ability. Though the trends of development of 'basic' motor activities are universal and have roots mainly in maturation, the environmental influences and every day learning through conditioning determine the finer coordinations of motor movements. Through training and proper environmental exposure a child can be taught the finer aspects of locomotion and motor manipulation. But at the same time the child has to acquire certain basic and primary maturation and development in order to be trained.

The bones of the infant are at first soft and flexible but become harder with maturation, grow in physical dimensions and also change shapes. At about 3 to 4 months the child develops the thumb opposition, *i.e.* the working of the thumb in opposition to fingers. Around 6 to 7 months the infant shows eye-hand coordination by reacting out towards objects in the visual field. At the age of about one year the child can both grasp and transfer objects from one hand to the other. By the sixth month he can throw objects at random, *i.e.* without any aim or goal. The goal oriented throw comes as late as 2 years showing sign of adaptive behaviour. By the end of first year of infancy, the child is able to stand unassisted and take a few steps alone, the nutrition and mental development being optimum and normal.

Motor Development and Adjustment

Murlidharan's[8] report on the Developmental Norms Project investigations on motor development of rural and urban children from ages 2.5 to 5 years reveals the following developments in motor abilities:

(*i*) Generally all the children can catch rolled ball at the age of 2½ years. Whereas, the urban boys and girls can throw a ball with right hand—and well directed too— from 2½ years, the rural boys can do so at the age of 3½ years.

(*ii*) While urban boys and girls can catch a chest-high ball from the age of 4 years, the rural boys and girls do it from 4 to 5 years;

(*iii*) Urban boys and girls are able to stand on one foot from the age of 2½ years, the rural boys and girls can do so from 3 years onwards;

(*iv*) Children in general able to walk on 8 cms and 6 cms board from 2½ years.

(*v*) Step jumping can be done by majority of urban children at 2½ years. This decreases as the age increases.

(*vi*) Jumping from a height of 40 cms can be done by urban children from 2½ years, whereas rural children can do it by 2½ years to 3 years.

The study reveals that urban children, on the whole, are found to be faster in motor development than their counterparts in the rural areas. However, the child from 6 to 9 years is challenged by activities requiring speed and accuracy. Movements become more accurate because his sense of direction is much improved and eye-hand coordination develops rapidly. The sense of equilibrium or balance develops as a result of maturation and also practice gained by doing acts.

It was concluded that "From the age of seven, the child's skill in the use of small muscles, finer motor coordinaton develops rapidly as a result of his environmetal exposure and efforts at adjustments to his immediate physical reality. With more physical maturity he goes on to learn and play more and more complex games requiring finer motor skill and thereby acquiring precision control of hand, feet, sense-organs and the central nervous system.

In their study "Behaviour Development of Children in the first Eighteen Months of Life." Abhichandani, Ghai and Chandra[9] used a combination of selected items from Nancy Bayley scale of Development and the Denver Development screening Test (DDST) on 75 babies born in the maternity wing of All India Institute of Medical Sciences, New Delhi. They were followed up for their behavioural development from birth to eighteen months of age. Their developmental assessments were done at monthly intervals on gross motor and fine motor/adoptive items. They report a series of acts and the median age at which 50 per cent and 100 per cent of the babies studied could perform the acts which indicate both gross and finer motor developments. They also attempted a comparison of the said development between Indian (Delhi) children and American children. Pathak's[10] study on motor and mental growth of Indian babies of one month to 30 months also indicates the stages of motor development, and is one of the important studies, carried, out in recent years in India.

Handedness

In the early weeks the human organism is "ambidextrous" *i.e.*, it does not show any preference in the use of either hands. An unequal use of two hands is evident around the mean age of 6 years. The use is both preferential and in greater strength. Even during first year there is no indication of hand preference and they use either hands as a matter of convenience, *i.e.* if an object is nearer the left hand the baby would use the left hand to acquire it or grasp it, if closer to right, he will use the right hand. This shifting pattern likewise also occurs in the second year but less frequently than in the previous year.

Thus, in the first year, the infant is neither dominated by left or right hand though certain pattern of preference of either hand can be observed in the second year. By the third year the child indicates a distinct preference of one hand, that is, the child becomes 'Unidetrous'. A preference of the right hand as compared to the left occurs in most children, except a few. If this preference of right hand is inherent in the physical process of growth and behaviour or is determined by socio-cultural influences is still controversial. Considerable aspects of finer motor coordiantions like writing skills and other manipulatory skills which are extremely important to the later development and adjustments of the child, are determined by it.

Delayed Motor Development

If a child falls short of the norms of maturational growth of motor activities and the skills he has to learn remain unlearnt, psycho-social problems are caused to the child. The more is the lag in the aquisition of motor control the slower he is likely to be in acquiring learning skills than other children of his age. Moreover, the desire to be independent in activities which emerge early in the second year is throttled and as a result the child feels frustrated when he unsuccessfully tries to do things. Studies have revealed reasons for this delayed motor development. These are dependent mostly on child rearing practices. Some of the more common factors are the following:

(*i*) The lack of opportunity to develop motor control because of a restrictive environment which discourages practice of motor activities;

(*ii*) Lack of incentive to develop muscle control because of pampering and things being always done for the children;

(*iii*) Body size and proportions which make movement of the body difficult;

(*iv*) Low grade intelligence which delays motor development in proportion to its deviation from the average;

(*v*) Fear engendered by previous accidents of constant parental warning;

(*vi*) Poor health caused by malnutrition and disease.

One reason for earlier development of motor in children of higher socio-economic group is that they have better nutrition and on this account early maturation of muscles to help motor development whereas in the children of lower socio-economic group early motor development and coordination can happen if child rearing practices are physically more permissive and environment for such practice exists.

Though the trends of motor and loco-motor development are universal and have their roots in the basic development of maturational level of the child, the environmental influences and every day learning through conditioning does determine the extent and the early acquiring of skilled motor manipulation skills by the child.

Through training practices and proper environmental exposure a child can be taught the finer aspects of locomotion and motor manipulation. But at the same time he has to acquire a certain level of physical maturation and the level of development of the central nervous system in order to be trained in the performance act. After all motor development is not an end in itself but it means to serve a purpose, by learning skills, in the adjustment of the living organism to the reality around him both psycho-social and physical. Thereby, with the requisite maturation the child learns to manipulate objects in space, learns how to play complex games and finer locomotions, and he can be taught to do so.

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17
The Brain Develops

The Brain's Complexity

Man's most distinctive features in his brain, an astonishing organ weighing 3-3½ lb. (1350-1600 grams) that even now is only partly understood. Without it, none of the behaviour described in this book could occur. With it we can perceive, think, talk and move in ways so diverse that no other species on earth is so powerful. This diversity of behaviour is the key to man's superiority and it reflects the much greater complexity of the human compared to animal brains. The enormous complexity of the human brain is in the last analysis what should be kept in mind when considering its growth and its function.

The Map of the Brain and the Central Nervous System

Just as explorers of old discovered new countries and drew maps, naming parts, so investigators have mapped the brain, naming parts. The first scholars were accustomed to using classical languages as the accepted media for science—hence the use of Latin or Greek terminology. In this section, the nearest English translation will be given in brackets, and the one to start with is the general word *cerebrum* (brain).

Opening the skull. The exposed human brain looks like a large walnut, in two halves, wrinkled, with many folds. The wrinkled outside is the *cortex* (bark), a surface layer of about 3-4 mm, divided into *gyri* (ridges) and *sulci* (valleys).

The forebrain. The cortex is the surface layer of two almost but not quite identical hemispheres, known simply as left and right. They are joined by a thick bundle of fibres, the *corpus collosum* (tough body). The hemispheres are made up of *lobes*, each of which is roughly associated with different functions for example, the *frontal* and *temporal* lobes seem to deal with speech and memory and the *parietal* lobe appears to contain those parts concerned with the relationship between body and mind.

At the centre of the brain is the *thalamus* (inner chamber) which forms a junction for many fibres sending signals from various sensory systems to the cortex. Below it the *hypothalamus* (*hypo*=below) is seen as the regulator of instinctive behaviour, including thirst and hunger. It is concerned also with emotions and the secretions of the *pituitary gland.*

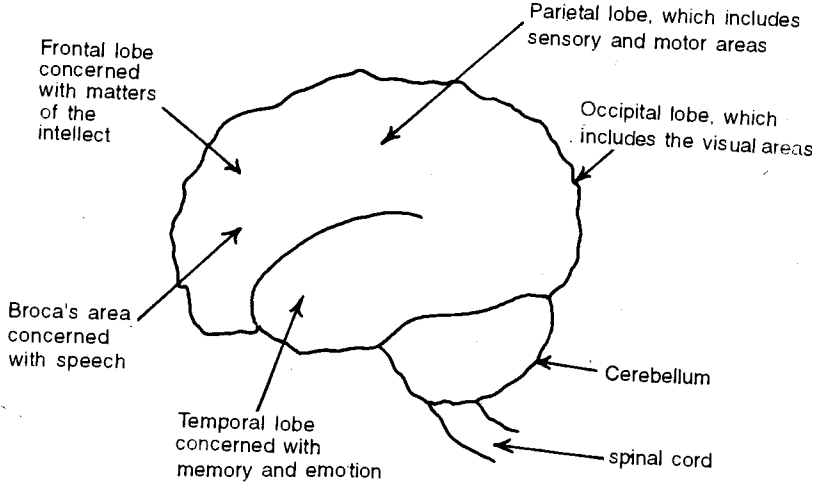

Fig.17.1. The lobes of the brain and left hemisphere.

The midbrain, much smaller than the forebrain, is associated with the control of responses to sight and sound and some control of sleep.

The hindbrain includes the *cerebellum* (little brain), which is involved in the control of movement.

The midbrain and hindbrain are sometimes grouped together and called *the brain stem.*

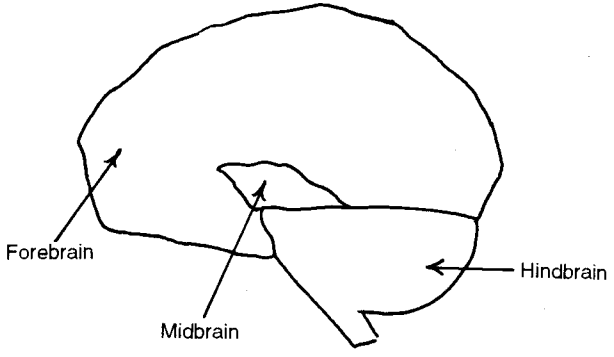

Fig. 17.2. The forebrain, midbrain and hindbrain

The Brain and the Body

The brain stem is connected to the rest of the body by the *spinal cord* carrying fibres which connect the brain with muscles or sense organs in all parts of the body. Together the brain, the brain

stem and the spinal cord form the *central nervous system* or CNS. The network running through the rest of the body is known as the *peripheral nervous system,* giving messages of, for example, toothache or a pin stuck in a foot.

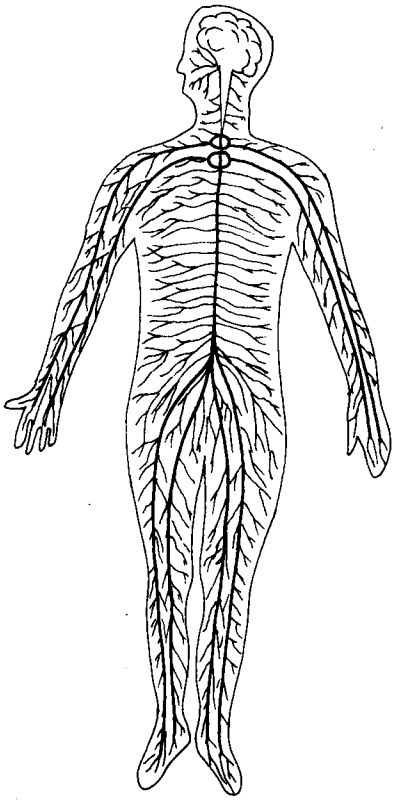

Fig. 17.3. The nerve pathways.

So far parts of the nervous systems have been described as though they were quite separate. In fact messages are constantly flowing from one part to another and it is misleading to conceptualise the systems as though made up of discrete entities. Labelling is a convenience only.

The Working of the Nervous System

The nervous system is made up of nerve cells of two types. The *neurones* are unlike other cells in the body in that they send out many fibres. The fibres *receiving messages* from other cells are called *dendrites*; others, which *send messages,* are the *axons.* Another nerve cell type, the *glia,* are thought to provide nutritive support to the neurones as well as providing the *myelin sheath* protecting and insulating many nerve fibres.

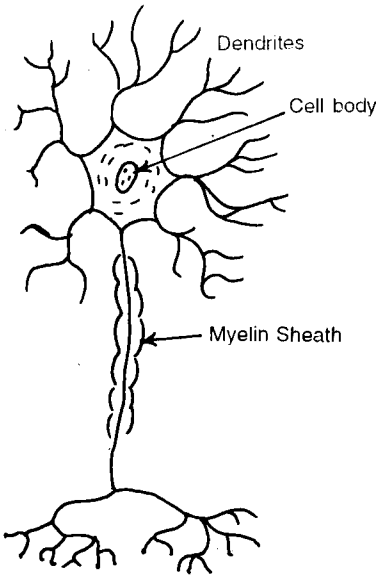

Fig. 17.4. The nerve cell.

Information transmission along the nervous system is by means of electrical signals which travel along each nerve, the messages passing from one nerve to another at the *synapse* (handclasp). At this point this is a gap between nerves. When the electrical wave reaches the synaptic gap the cell releases a chemical substance which diffuses across the gap to the next cell which then reconverts the chemical message to electricity. The nature of the chemistry concerned is complex. Up to ten years ago it was believed that only two classes of chemicals, known as *neurotransmitters*, were involved. Now it is thought that many more neurotransmitters play a part, each of which may have a different function.

At the beginning of this chapter it was noted that the crucial characteristic of the human brain and nervous system is its complexity. Now that the basic structures have been described it may be possible to attempt to grapple with the complexity by means of some astonishing figures.

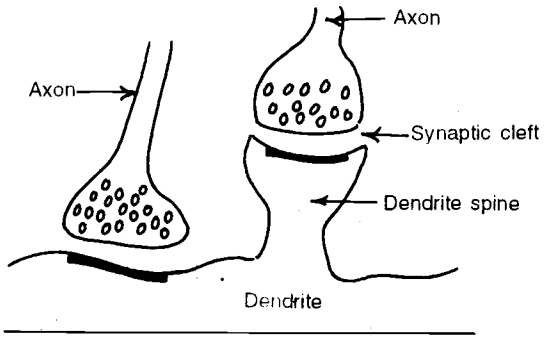

Fig. 17.5. Synaptic connections between neurones.

The brain itself is thought to be made up of some 10,000,000,000 nerve cells—the figure may be 10 times more or 10 times less. Each nerve cell is in contact with about 1,000 others. At this point counting or multiplication passes most people's comprehension.

Up to now there has been an emphasis on the relationship between the CNS and the rest of the body. In some ways, though, the two are distinct for the so-called 'blood brain barrier' prevents many harmful substances in the blood from reaching the brain. The CNS has its own fluid supply in the *cerebro-spinal* fluid surrounding it and has a blood supply as well. If this blood supply is interrupted for more than a couple of minutes or so cells are starved of oxygen and glucose and die. This is what happens to parts of the brain when one suffers a stroke.

The functions of the brain in memory, movement, emotions and so on are discussed in the chapters that follow. The rest of this chapter will consider development first phylogenetically and then ontogenetically.

The Evolution of the Brain

Developmentally the brain and the hand go together. As Alfred North Whitehead put it: 'It is a most point whether the human hand created the human brain or the brain created the hand. Certainly the connection is intimate and reciprocal.'

The key characteristic of brain/hand activity is the way they combine to produce an increasingly flexible behavioural repertoire thus enabling man to change his immediate environment more quickly and more effectively than any other species.

Man-apes, living some million years ago, are thought to have had a cranial capacity only half that of modern man, *i.e.* 450-500 cm^3. A crucial aspect of man-ape's life was his use of tools of horn, bone and, later, of stone. As the brain developed so hands became more skilled and so the brain developed further by being able to use the skill.

Cranial capacity as such is no measure of brain power. The cortex has increased massively in the intervening million years; if the size of the head had grown in production it would be far too big for our body. The response of the brain has been to become folded in order to fit into the space.

The Development of the Brain

At birth the brain is approximately 25 per cent of its adult size and by 2½ years it has reached about 75 per cent. By four the overall growth is more or less complete. The midbrain is most fully developed at birth but by about six months the cortex begins to take over as the more dominant part.

This aspect of growth is but one. Much more complex and controversial is the development of *interconnections between cells*. Not only is this topic complex: it may have considerable bearing on education and child rearing.

We know that at birth, or very soon after, the human brain has as many cells as it is likely to have as an adult, *i.e.* about 10,000 million. (The number implies, incidentally, a rate of growth *in utero* of about 250,000 neurones a minute.) But the neonate's brain lacks the complex message-carrying pattern of interconnections that characterises the adult's brain. One of the critical questions of child development is knowing whether these connections develop as a result of a genetic blueprint or whether the organism's experience plays a part. Observations of human behaviour compared to that of animals lower down the

evolutionary scale suggests that experience is powerful. With some reservations it can be said that the lower down the scale the less need there seems to learn anything: as *Roger Lewin* has neatly put it, 'bees know what to do with flowers'. But we have to teach our young to do almost everything.

Experiments on animals, especially cats, have suggested two major conclusions in this field: first, experience does appear to be critical, at least in the limited areas studied, and second, there appears to be a sensitive period of the utmost importance.

The two names most often associated with animal experiments are *David Hubel* and *Torsten Wiesel,* two American neurobiologists who have shown that it is possible to isolate certain cells in the visual cortex of the cat which are programmed or 'wired up' to respond to certain visual stimuli. Thus some cells respond to horizontal lines, some to vertical and so on. Other workers have followed Hubel and Wiesel's pioneering studies and have shown how experience affects this wiring up. For example, in one experiment kittens were reared in an environment in which the only visual stimuli they were exposed to were either horizontal *or* vertical. The result was kittens who, when entering a normal world, were apparently blind to stimuli other than those to which they had been exposed. A 'horizontal kitten' could jump onto the seat of a chair but bumped into the legs.

An even more bizarre outcome of this work was another study which brought up kittens in a spotted environment. This gave results showing that such is the *plasticity* or flexibility of the brain that many cells were converted into spot detectors. The critical period for plasticitiy in the kitten seems to be between three weeks and three months, with the most sensitive time being four to six weeks. If one could establish the nature and extent of the formation of neural interconnections in the human brain there would be obvious advantages when designing the child's environment and educational programme.

The process of *myelination* is a further form of development in the brain, one which continues into adolescence and possibly even to old age. Myelination is the process in which glial cells form a sheath around fibre systems, providing a protective insulation to aid the efficient transmission of impulses. Charting the development of myelination is a way of marking the different regions of the brain mediating certain skills. The auditory pathways of the brain begin to be myelinated in about the fifth month *in utero*; the visual pathways do not begin the process until just after birth, after which it develops rapidly. These two patterns follow from what is known of sensory experience: it seems that the foetus can respond to sound but not to light.

A Second Communication Network: Hormones and the Endocrine System

Instead of the electrical impulses we have encountered in the nervous system, this second network used chemical messages, called *hormones,* which are carried in the blood stream from the endocrine glands where they are secreted to the receiving organs. The messages are much slower in action since their topics of concern are less urgent, being related to functions such as bodily growth and water balance.

The *endocrine glands,* of which the most important for a student of child development are the pituitary, the thyroid, the adrenals and the gonads, form an interlocking system: disturb one and others are likely to malfunction. They are mentioned here partly because of their message system and partly because they interact with the brain. The nervous system can, for example, affect the production of some hormones, notably those concerned with secondary sexual development, and the nervous system

can be affected by hormones influencing emotional arousal and water balance.

Hormones are present in the blood from birth. The precise relationship between them and developmental characteristics is unknown, although there is an established relationship between the secretion of the thyroid gland and physical growth: too little is associated with delayed development of bones, teeth and brain.

One of the pitfalls of psychology is the lure of the simple answer to a complex question. In any study of human behaviour, and child psychology is no exception, every aspect worth studying is multifactorial in origin—that is, there is more than one contributory factor. A close study of neurological development can be seductive, for one is easily misled into imagining that there is a simple, one-to-one relationship between the brain, the endocrine system and behaviour. Walking and growth are examples: we cannot walk at the age of six months because our cortical development is insufficient. We grow, or not, according to the secretions of the thyroid gland. It all sounds convincingly regular. But while early walking is undoubtedly limited by the cortex, subsequent control of the legs and feet are determined in part at least by the opportunities offered the child to practise skills. Growth, and the production of growth hormones, can be determined by emotional factors. No matter how expert we become in understanding message systems we still need to study the origin and the effect of the messages if we are fully to understand what is going on before our eyes.

Localisation, Plasticity and Lateralisation

Already there have been several references to *localisation*: the concept of one or other region of the brain being a mediator of certain functions. Thus, the temporal lobe is said to be concerned with memory.

Two main points should be made about localisation. The first is that there is a difference in the *degree of precision* of localisation. In language, for example, the area related to spoken speech is relatively well-defined but that mediating the understanding of language, both written and spoken, is more diffuse.

The second is that much of our understanding of localisation and function is based on work with adult brains. The child's brain is possibly much more *plastic, i.e.* if one area is destroyed other wiring systems can come into play to take over that function. (See the reference to cats' brains above.) Indeed, recent work on the brains of hydrocephalic people suggests that even a very thin cortex, much thinner than normal, can function as well as many others. The question of plasticity is still not properly understood and the remarkable findings on hydrocephalic brains point up our ignorance.

Lateralisation refers to the specialisation of each of the two hemispheres for certain functions, with one hemisphere becoming *dominant*. Nearly all right-handed people (98-99 per cent) have left-dominant brains with language functions being located in the left hemisphere and spatial functions in the right. Lateralisation among the left-handed is more complex, 30 per cent having right-dominant brains and the others having either left or less evident dominance.

Some lateralisation of the brain appears to be present at birth, notably that concerned with language. However, the process continues and dominance may not be complete until the fourth to sixth year. Children entering school may use both hands equaily well but by the time they reach six or seven they have usually settled for one hand or the other.

Work with 'split-brain' patients—those whose neural connections between the hemispheres have

been severed—can shed some light on lateralisation, and have produced the *interference hypothesis.* This states that the two hemispheres' modes of processing are antagonistic; when the two modes occur in the same hemisphere they interfere with each other. So if for any reason one hemisphere has to process both language and spatial function neither will achieve top performance. This hypothesis goes some way to support that of Orton who, in 1934, suggested that a lack of cerebral lateral specialisation plays a part in causing stuttering and dyslexia.

Further implications of right-left differences have been drawn in studies not only of right and left-handers but of different social and cultural groups. Several authorities in America writing in the 1970s suggested that middle-class children may be more likely to use a verbal analytical mode, while their working-class counterparts rely on the spatial-holistic mode. This has led some to what others regard as the fanciful notion that schools should develop programmes to train the less efficient side of the brain.

The Brain: A Computer or a Garden?

Older texts on child development liken the brain to a telephone switchboard, with messages coming and going. A newer analogy is the computer, processing information using a memory store and sending an output as a result of the working of the programme.

One of the world's leading experts on the brain. Gerald Edelman, takes issue with the computer approach. Who, he asked in an interview given in 1983, writes the programme ? His studies have lead him to stress the unique nature of every human brain; for him diversity and individuality are the crucial characteristics of this organ, a point made in the last century by Darwin.

Edleman's views owe much to Darwin. The brain, he asserts, is essentially a *selective system,* more like evolution itself than computation. The implications of this view are that each individual has a chance for a 'second evolutionary path' during a lifetime. With a combination of chance and necessity and what he calls 'a kind of remembered programme from the successes of the past' each individual adapts in a unique way. As each garden is unique, owing something to the past but adapting to the circumstances of the day, so the brain develops. Edelman quotes Keats's *Ode to Psyche*:

And in the midst of this wild quietness;
A rosy sanctuary will I dress;
With the wreath'd trellis of a working brain,
With buds, and bells, and starts without a name,
With all the gardener Fancy e'er could feign,
Who, breeding flowers, will never breed the same.

Questions

1. What do you understand by references to the extreme complexity of the human brain ?
2. Outline the mechanism of one message system of the human body.
3. What is the relevance to an understanding of behaviour of lateralisation ?
4. Explain the following terms: neurone, myelination, synapse, CNS, the plasticity of the brain.

Exercise

Take any group of children and measure :

(*a*) Their head circumference

(*b*) Any aspect of academic attainment.

Is it possible to conclude that there is a relationship between the two? Discuss your results.

18
Language Development

Signs and Symbols

A major feature distinguishing the human beings from the other animals is the ability to use vocal speech as a means of communication. It is true communication as such is there practically in all species of animals, except perhaps the very lowest. The bees and ants communicate informations by means of smell. The birds communicate by means of sounds.

The tools of communication are of two kinds; signs and symbols. All organisms use signs and signals; but symbols are unique to human beings. Language is symbolic communication.

Language is closely associated with learning on the one hand and with memory on the other. It is through these three closely interrelated processes of language, learning and memory that man is able to understand and use the knowledge about environment to build up human civilisation.

Studies have shown that chimpanzees make a variety of sounds. One cry may signify "food" another "danger". But these vocalisations refer to immediate situations and present dangers and not to the danger a few minutes ago or to the danger yet to come. The utterances are limited to objects and events that have been sensed; they do not refer to objects and events of the past or future; that is, they do not involve memory and imagination.

In contrast, symoblic behaviour among human beings is highly varied. Symbols represent objects, situations or events experienced in the past. Much of the insightful kind of learning may be symbolic in nature involving implicit manipulation of various environmental features. Symbolic processes are evident in such activities as imaging, thinking, reasoning and forming concepts. All these activities involve some kind of manipulation of learned materials and generally result in further learning. They will be dealt with later.

Language involves sounds which can be used in any combination with a large number of other sounds. All these sounds and their combinations have meanings. They refer to the present or the past or the future. Thus language is not time-bound as animal cries are, which refer only to the present. Even more significant is the characteristic feature of language which enables it to deal not only with the concrete but also with the abstract and the non-physical. While sign-signal behaviour appears to be

oriented toward the communication of feelings or affect, symbolic communication can convey information as well as feelings. As a result symbolic bahavior (language) enables individuals to understand one another infinitely better than sign-signal behaviour used in communicating with, for example, deaf and dumb persons. Finally, language permits the communication of information from one generation to the other. In this manner, the wisdom as well as the errors of the past are available to the present generation. Further, with the help of language the present generation can modify the environment through planning so that the future is more comfortable than the past.

The Course of Language Development

The first cry uttered by a child is its cry of birth. The early crying and cooing of the infant only incidentally serve the function of communication.

Sounds. There early sounds are explosive in nature, caused by the air being expelled from the lungs through the vocal cords. Crying, babbling and gestures are all important forms of 'pre-speech' communication.

In general, infants produce similar sound patterns in the various cultures; the basic phonemes (sounds of languages) are present in these early babblings. Chen and Irwin (1946) studied the growth of vowel sounds and consonant sounds from birth to three years of age. They found that the vowel sounds are made during the first week of life and increase rapidly in variety during the first year; in the early months, most of the sounds are vowels; shortly afterwards consonant-vowel combinations commence. Consonants then increase in comparison to vowels. As a result, within a few months after birth, the child make a wide assortment of sounds. By ten to twelve months the child is capable of uttering most of the different sounds used in the various languages of mankind.

The mother starts talking to the child right from the moment of birth. She converses when she changes the clothes of the infant, when she feeds the infant or when she bathes it. The infant's sound-making is thus reinforced by the association of sounds with comfort. It is pleasant for the parent to listen to the sounds made by the infant. It is this joy that is considered the first step in meaningful communication.

Though by the end of the first year the infant is able to produce all the various sounds, reinforcement brings about a change. When the child makes sounds that are not used in the parent's language, the parent looks baffled and does not reinforce the sound-making behaviour. But those sounds which are to be found in the parent's language are reinforced by parental attention and expressions of joy. Also the mother herself makes those sounds and encourages the child to make them. Thus, through reward when the child produces the sounds found in a language and non-reinforcement of sounds not found in the particular language, infants begin to utter more often those sounds to be used later by them in the formation of words. As a result when the child grows up and hears another language, he finds some of those sounds very peculiar and "funny."

Words. As noted above when the infant utters the consonant-vowel combinations ma-ma or da-da in his babblings, the adults invest them with meanings according to the usage in the culture. For example, in some Indian language "amma" stands for the mother and "mama" stands for the maternal uncle; "appa" stands for the father and "papa" stands for the child and so on. The parents show great

pleasure when the child uses these sounds appropriately and fondle the child and praise the child. Thus the relation between the particular sound and the person is reinforced by the expressions of pleasure and the affection shown to the child. It becomes a rewarding experience for the child.

Another important aspect in the growth of meaning of words is that the child becomes aware of the denotative meanings of words used by the parents though he may not be able to utter those words himself. He then attempts to approximate the sound to convey that meaning. This is indeed true of people of all ages. Comprehension continues to develop more rapidly than the use of language. Our understanding of words is much more than our use of them. Fraser *et al.* (1963) confirmed that comprehension does indeed exceed production. Glucksberg *et al.* (1966) found that listner proficiency precedes speaker proficiency in development in nursery school children. Through constant association of word with stimulus in a wide variety of settings, the child recognises that sound combinations refer to things or persons or acts. This is the beginning of meaningful speech.

Studies show that the child's first word is uttered about one year of age. But there are considerable individual differences. Some children may use words by ten months and some may not till they are twenty months or more. While early speech may be a good indication of general precocity, delayed speech, by itself, is no indication of retardation. There may be delay in speech because those children have received little reinforcement; others may not start using words because their mothers readily anticipate their demands and take steps to fulfil them.

The growth in vocabulary may be studied in one or two ways. One way is to keep a record of the words a child speaks at different ages. Obviously this method is difficult as well as unreliable. The other method is to select a sample of words and then present the children of different ages with pictures or other stimuli and elicit the names of those objects and events. The rate of development of both comprehension and speech depends on a number of factors, particularly the socio-economic background and parental education.

Long ago, Smith (1926) studied children aged 8 months to 6 years; they were required to name various objects shown in pictures. The following Table 18.1 gives the relevant figures:

Table 18.1. Increase in Size of Vocabulary in Relation to Age

Age		*Number of words*	*Gain*
Years	*months*		
(1)	*(2)*	*(3)*	*(4)*
0	8	0	
0	10	1	1
1	0	3	2
1	3	19	16
1	6	22	3
1	9	118	96

Contd..

(1)	*(2)*	*(3)*	*(4)*
2	0	272	154
2	6	446	174
3	0	896	450
3	6	1,222	326
4	0	1,540	318
4	6	1,870	330
5	0	2,072	202
5	6	2,289	217
6	0	2,562	273

Source: Smith, 1926.

The IQ of the groups studied at different ages was about 108 to 110. This keeps the intelligence factor constant. It can be observed that the rate of acquisition of words is slow in the first 15 to 18 months. About 150 words or thereabouts are acquired from 1 y 6 mo to 2 y 6 mo. The highest gain is between 2 y 6 mo to 3 years, being 450 words during those six months. It slows down to 300 words in the fourth year and goes down further later on.

Another way of looking at the result is to see that by one year the child knows about three words; by two years he knows nearly 300 words; by three years he knows nearly a thousand words and by five years two thousand words. This is the rapid growth in using words in the first five years of life.

Sentences. The correct ordering of words to form a sentence is also learnt rather early by the child. In the beginning the child may use one word to stand for a sentence as, for example, when the child says 'milk,' he may mean "I want milk" or "The milk is good" etc.

Brown (1965) studied the language development of two children by noting down for two hours every second week their utterances and also by tape recording. The dialogue between the mother and the child was quite unlike that between two adults. The mother's sentences are short and simple; they are perfectly grammatical. The child's sentences are also short but not so grammatical. When the child imitates the mother, the word order of the original sentence is preserved but some words may be missing. The problem is why the order is preserved by the child in his imitation. At present we do not have definite knowledge. It was also found from the records that the length of the sentence of the child was about two to three words though the mother's sentences may have been longer. The words most likely to be retained in the child's sentence are nouns and verbs, and less often, adjectives.

It is when the child starts putting two different words together, that the child's language becomes structured. It is at this age, around 18 months of age, that the development of grammer starts. Braine (1963) found that the frequency of two-word combinations increases rapidly from about 14 combinations when the child is 18 months old to 89 combinations when he is 21 months old, 500 by the time he is 22 months old, 1500 at 23 months and over 2,500 when he is two years old. Thus, there are a large number of new combinations of two words produced in the short span of six months from 1.5 years to

2 years of age. Analysis of these two-word sentences showed that they are not random juxtapositions. Two classes of words can be discerned; there is a small class of what have been called "pivot" words or "operators" and a large class of "open" words, many of which were previously one-word utterances. Slobin (1969) showed that the sentence construction at this stage may consist of two "open" words like "man car" or one "pivot" and one "open" like "other man" or "other car." Words like "other," "more" "my," "see," "there," "this" etc., are the operational or pivot words which the child uses with open class words like car, dog, door, girl, man, milk, toy, etc. The former set of words are called pivotal because other words can be attached to them.

When the child reaches the three-word stage, sentence-formation becomes hierarchical in structure. There may be errors in the formation of tenses of the verb like "combed," "breaked" etc., or in the formation of plurals, like "foots," "mouses" etc. But the structure of the sentence-formation is there and gradually the child picks up the method and forms sentences like the adults.

Social Class Differences

Long ago McCarthy (1930) found consistent differences in favour of upper social class children in language maturity. Similarly Templin (1957) in his study confirmed that in nearly all language measures used, including accuracy of articulation, vocabulary, etc., social class differences occur. A number of factors have been described to account for social class differences in language development. Verbal interaction between parent and child is less in the lower-class homes than in middle-class homes. The educated middle-class parent stimulates his child linguistically by reading to him, discussing events with him or reasoning with him. On the other hand, the parents in lower-class homes are themselves terribly handicapped to provide good speech model to their children. This is so particularly with the rural parents and the parents of the lower castes in India. However, we do not have studies in this regard. Hess and Shipman (1965) taped samples of the mothers' language. It was found that the middle-class mothers used more abstract words and their sentences were more complex in structure than those used by the lower-class mothers. Deutsch (1963) points to the fact that the home of the lower-class child has few objects to provide a variety of stimulation. The child in the one-room hut in the village or in the slum in the urban areas in India has few things to observe or play with. The entire possession of the household could be put in a gunny bag and transported on the back of a person. By contrast when a middle-class home shifts there will be a few lorry-loads of articles from the kitchen, the dining room, the drawing room the study room, etc. This gives the opportunity for the child from the middle-class home to learn many words and have a good vocabulary by the time he goes to the primary school.

Steps are now being taken to develop remedial programmes to help the children from lower-class homes to acquire vocabulary, correct pronunciation and the proper sentence structure (Bereiter and Engleman, 1966). It may be stated in passing that good programmes of elementary education and uniform textbooks will help the socially disadvantaged children to remedy their deficiencies in language development to some extent.

Studies have shown, however, that the effects of language retardation are only transitory. Tutoring and enrichment of the environment can produce marked, rapid and permanent language gains. (Luria, and Yudovich. 1959).

Two Kinds of Competence in Language

Two kinds of competence in language must be distinguished. There is first of all the 'linguistic competence' which involves the increase of one's vocabulary, the improvement of one's ability to construct proper sentences by using the rules of grammar, increasing one's ability to make transformations, that is, to express the same message in different ways. Such linguistic competence is acquired quite early. It has been noted above that the child acquires nearly 1,500 words by the time it is three and a half years old. According to McNeill (1966) the child reaches the adult level of linguistic skill and competence by the time it is about eight years. But Krauss and Glucksberg (1969) are of opinion that the age of levelling off of growth of linguistic competence is a little later, beyond the age of ten years. In any case, present knowledge indicates that the child reaches the adult level of linguistic competence by ten years of age. After this time linguistic growth merely consists in the increase of vocabulary and more varied means of expression.

The other kind of competence is the "communication competence," the ability to use language as a means of communication. This competence is in some senses more than linguistic competence. It involve skills in role-taking; it involves particularly, the ability to appreciate the knowledge of the listener (Flavell *et al.*, 1968). It involves the social aspect in addition to the more mechanical skills involved in linguistic competence. It is this skill that is taught in courses on "rhetoric," "public speaking," "persuasion," group discussion, etc. Communication skill is the skill to break down the barriers to interaction. It is a means for achieving mutual understanding; it is means for relating oneself to others on a more meaningful level. Parents at home and the teachers in school must take steps to improve this skill also.

Language and Thought

The Russian thinker Vygotsky (1962) emphasises the role of generalisation in verbal communication. Things must first be categorised and it is only after this that the words come to represent the categories.

According to Vygotsky, thought and speech have different genetic origins; they develop independently. There is a prelinguistic phase in thought and a preintellectual phase in speech. At a certain point in development, thought land language meet and "thought becomes verbal and speech rational." Similar view has been developed by Lenneberg (1969); he emphasises that condition is not peculiar to man; it is there at the animal level; but language is unique to human beings. This view implies a genetic difference between cognition and language, at least in origins. However, both Vygotsky and Lenneberg emphasise that the relation between thought and language develop early in child's life. By about the age of two, the child discovers the symbolic function of language. But this discovery is possible only when there has been a development in thought on one side and in language on the other.

As for the development of language, it has been seen that there is the prelinguistic stage of babbling and cooing. The infant makes sounds which have no relationship to language, though they are basic to the development of language. At this level the sounds are more expressive of emotional states arising out of comfort or discomfort. These sounds have no relation either with language or with thought. They are neither symbolic nor cognitive.

As regards thought, long ago Kohler (1925) demonstrated that chimpansees are capable of solving problems and using tools. When the chimpansee is in the cage, and there is a banana outside its reach

it can use a stick lying near it to draw the banana near the cage and pick it up. Similarly when a banana is hanging from the roof outside its reach, after repeated vain efforts of jumping, it uses the pole lying nearby to hit the banana and secure it. It can also draw a box and get up on it to secure the banana. In this way Kohler showed that there is clear evidence of "insight" in the chimpansee. Here is thought without language.

Meadows (1968) reports that deaf children of deaf parents were superior to deaf children of parents with hearing in both intellectual and social functioning. White the deaf parents communicate with sign language which is readily understood by the deaf child, the non-deaf parent uses signs as well as symbols (language) to communicate; but the deaf child is unable to understand the symbols. It thus seems that non-verbal communication can facilitate development of thought in the deaf child. In any case, lack of hearing verbal language does not prevent the growth of thought in the deaf.

According to Vygotsky there is first primitive stage of pre-intellectual speech, and parallel, but separate, preverbal thought. In the second stage, there is the accumulation of cognitive experiences regarding the child's own body, of objects and use of tools; in parallel, speech becomes more grammatically correct. In the third stage, there is egocentric speech, when the child speaks to himself at certain times. On the other side, there is the development of thought using external signs and operations like counting on fingers. The fourth stage marks the covergence of speech and thought; the child now begins to use "logical memory" such as mental counting. However, even later on much thought can be non-verbal as, for example, in thought manifested in the use of tools. Of course, there can also be much speech with hardly any thought! But, according to Vygotsky, later development of thought is largely determined by language. This is why the teachers in the elementary school place great emphasis on achievement in language and achievement in arithmetic to judge the progress of the child in education. But Moore (1967) has shown that mere practice in verbal expression does not necessarily promote the structuring of thought.

Furth (1966) asserts that the notion that the deaf are poor in concept formation is based on the fact that they are poor in linguistic skills. This is based on the assumption that thought is necessarily linguistic. By examining in detail the thinking skills of the deaf. Fourth found that though the deaf people perform less well than the non-deaf in certain situations, they can do as well in some other situations. He insists that the differences between the deaf and the non-deaf is not due to some necessary or direct relationship between language deficiency and intellectual functioning but rather to some social reasons. The deaf child is treated as inferior and he is educationally disadvantaged. Furth suggests that thought is quite possible without language, though he recognised that thought with language is more efficient and more flexible. Pettifor (1968) has demonstrated that the linguistic difficulties arising out of deafness really affect the higher levels of conceptual thinking; at the concrete level conceptual thinking is less dependent on language; it can operate successfully by manipulating visual perceptions.

Bruner (1966) shows that any kind of symbolic activity requires the organisation of experience in ways essentially similar to those involved in syntax, namely, categorisation and hirearchy. Categorisation arises from the fact that almost all verbal labels refer to classes of objects; it is through categorisation that the child can use language. Hierarchy refers to the fact that some words are more important for the message in an utterance than others; the use of "telegram" language by the young child indicates a

grasp of this fact. Thus the child uses these organisational principles in language long before he can use them to organise the world of experience. But the child cannot do this unless there is further training in the symbolic representation of experience; otherwise thought will remain at the concrete level without much progress in the understanding of the experiences.[1]

The Growth of Paradigmatic Responses

Long ago Woodrow and Lowell (1916) reported that in giving word associations, children followed a sequential (syntactic) pattern in contrast to the adults who give responses of a replacement pattern (paradigmatic). Recently Brown and Berko (1960) found that the linguistic skills required to correctly perceive and use a part of speech were highly correlated with the frequency of paradigmatic responses. Thus it was realised that the frequency of paradigmatic responses provides the best and the most direct evidence of the linguistic development of children.

The child is given a list of words (nouns, pronouns, verbs, adjectives, adverbs etc.) and asked to respond to each word with the first word that comes up to his mind. The response word can be classified broadly into three groups:

(a) *Paradigmatic* responses where the child responds with another word of the same class like, for instance, deep shallow or black-dark or black-white etc. Here a word corresponding to the stimulus word is given. This gives an indication that the child recognises the "parts of speech."

(b) *Syntactic* responses where the child, as it were, completes a sentence like, for instance, deep-hole or warm-clothes, flower-pot, table-cloth etc.

(c) Other responses like repetition of the stimulus word or rhyming etc.

(d) No response.

Entwisle (1966) found that paradigmatic responses—those matching the form class of the stimulus word—increase over the years of middle childhood. She reports that the child first learns "what-follows-what," the phase of syntactic responding, and then goes on to "what-substitutes-for-what"—the phase of paradigmatic response, which indicates that he knows something of the rules governing a particular form class.

Kuppuswamy (1971) reported his study of the response of 480 children studying in Kindergarten, first, third and fifth grades using the Kannada equivalents of the stimulus list of 96 words used by Entwisle in her study. The list consisted of 24 nouns, 24 adjectives, 24 verbs, 8 adverbs, 8 pronouns and 8 miscellaneous words. These children came from three groups: (*a*) urban middle, (*b*) urban lower, and (*c*) rural.

The group as a whole gave 27.5 per cent paradigmatic responses to pronouns, 23 per cent to nouns and about 29 per cent to the other forms. The syntactic responses occurred the most; nearly 48 per cent

1. When I was writing this Section, my grand-daughter Jyotsna, eleven years old, studying in VII grade, asked me what I was writing. I told her that I was writing about the relation between thought and language. She started "Thinking is related to thought, but language is. . . . I cannot express it." I said "There it is. You have now shown that you 'know' it, but you cannot 'express' it in language."

to nouns, about 30 per cent to adjectives and pronoun and 35 per cent to miscellaneous. "Other responses" were 12 per cent for adjectives and miscellaneous and about 7 per cent for the others. But "no response" was about 48 per cent for adverbs, 43 per cent for verbs, around 38 per cent for adjectives and pronouns and 22 per cent for nouns.

As regards grade differences, the paradigmatic responses for nouns increased from 18 per cent in Kindergarten children to 23 per cent in first grade, 37 per cent in third grade and 36 per cent in fifth grade. For adjectives, they increased from 4 per cent in K.G. to 12 per cent in first year, 35 per cent in third year and 49 per cent in fifth year. For verbs, they increased from 5 per cent in K.G. to 15 per cent in first, 34 per cent in third and 41 per cent in fifth grade. For pronouns, the paradigmatic responses increased from 6 per cent in K.G. to 16 per cent in first grade, 51 per cent in third and 95 per cent in fifth grade. Thus with increase in age and grade there is a definite increase in paradigmatic responses.

The results showed a definite difference between rural and urban groups. While the rural children gave about 18 paradigmatic responses to nouns, the two urban groups gave between 40 and 50. Similarly with respect to other forms. But there was hardly any difference between the two urban groups. Thus the rural children were found to be definitely inferior to urban children but the socio-economic difference between the two urban groups had no influence on the proportion of paradigmatic responses. Nor was there any difference between boys and girls.

All these Indian results confirm the findings of American results according to the Entwisle study.

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19

Language Development in Children

Introduction

'It is by language that we trace with the greatest certainty the progress of the human mind.'— *Lord Monboddo*

'Language is never the rather static skill which many definitions make it appear; rather it is a dynamic active social process affecting almost all man's behaviour.'— *Patricia Howlin*

A study of the development of language exemplifies much of the difficulty inherent in the study of child development as a whole. Superficially, one simply describes certain stage-related skills. This purely descriptive exercise, although a valuable starting point, is no more than that. The next step is the attempt to link language with other aspects of a child's functioning—thought, for example. When one does this theoretical hurdles are raised and one moves into an area approaching speculation rather than observable fact. When the highest-order question is raised—how children learn to use language—the hurdle becomes insurmountable, given our present knowledge.

Some Basic Definitions

Language: A system of symbols with commonly recognised meanings (N.B. mathematics is a language).

Expressive language: The executive skill used in speaking.

Comprehension: They ability to understand language.

Speech: Utterances.

True speech: Communication using a conventional sound pattern and the anticipation of a response appropriate to the word (s) uttered.

Linguistic competence: The person's underlying knowledge of his language which must be available to him before speech can be produced or before words can be understood. It is this aspect that is the prime concern of the psychologist.

Grammer: That which deals with a language's inflexions or other means of showing the relation between words as used in speech or writing and its phonetic system.

Phonetics: Representation of vocal sounds by symbols.

Phonology: The study of vocal sounds or systems of sounds in a language.

Semantics: The study of the evolution of the meaning of words.

Syntax: Rules for the combination of words to form phrases and sentences.

Morphemes: The minimum units of meaning.

Phonemes: Speech sounds.

Holophrases: Whole phrases expressed in a single word, *e.g.* 'milk' may stand for 'I would like some milk now, please.'

Open words: Content words, usually nouns, with no fixed position. *e.g.* arm, baby.

Pivot words: Functional words—*e.g.* big, see, go, off, more, my—appearing in a fixed position in an utterance, *e.g.* 'my arm', 'my baby'.

Cooing and babbling: Phonetically diversified sounds produced by a manipulation of tongue and lips along with throat and voice, often including a high proportion of consonants leading to consonant/ vowel combinations: ba, ba, ba.

Echolalia: The reiteration of sounds, words or phrases.

Expressive jargon: Babbling with the sound of adult speech.

Inflections: Grammatical markers, *e.g.*-s for plurals.

Iteration: Self-imitating pseudo-talking.

Lalling: The continuous repetition of a single sound.

Patterned speech: Vocalisation when sounds can be distinguished but not reproduced.

Reflexive vocalisation: Non-differentiated crying caused by reflexive inhalation and exhalation of air. Normally past by the end of the second or third week of life.

Aphasia: A disorder of speech function resulting from cortical damage.

Dysphasia: Any impairment of language function due to cortical damage.

A language is governed by *rules* and is related to *events*. The speaker must understand the rules (the grammar) to generate language and to comprehend it, or to use more technical jargon, to decode the signals. A spoken language is composed of sounds, words and sentences.

For the rest of this chapter language will be taken to refer to *spoken language*.

Language and the Brain

Take two apparently normal, right-handed men in their early twenties. Assume that they both have an accident, one to the left hemisphere of the brain, the other to the right. The chances are that the one whose left hemisphere is damaged will suffer from some degree of dysphasia while the other will not.

From such evidence, and from work with children, it has been argued that the *left hemisphere* is predominant in governing the development of *spoken language*, including, that is, both the comprehension and production of language. Certain specific areas have been identified as having

particular importance, *e.g. Broca's area,* the left inferior frontal gyrus. While there is good experimental evidence to back this notion of the part played by the left hemisphere, for most left-handed people as well as the right-handed, there is probably also some truth in the view that at birth either hemisphere has the *potential* for language acquisition and damage to either in the early years of a child's life does not in itself prevent the development of normal language functioning.

However, during the period of rapid language growth, roughly from the end of the first year to the eighth, the left side of the brain plays an increasingly important part while the right diminishes in power. It is still uncertain, though, that the decrease in one is in direct proportion to the increase in the other. Once the ninth or tenth year has been reached the power of the right side to take over language function is so diminished that it is unlikely that a person suffering from permanent left side damage will fully recover powers of speech and comprehension although some recovery may take place.

Such is the scientific view of the 1980s, based largely on knowledge of functioning after known damage. In 1874 *Hughlings Jackson* warned against confusing the location of functions with the location of the damage that causes the impairment and it is possible that future work will stand the present conclusion on its head. For the moment we can assert at least that most people seem to need a fully working left hemisphere to acquire and use spoken language.

The Development of Language: A Description

The Prelinguistic Phase

One can trace the beginning of language as we know it to the first communicating sounds made by a baby: *the cry.* It remains open to doubt whether of not the cry of the newborn is a communication of anguish at having left the comfortable womb; what is not in doubt is that there are some differences between one baby's cry and another's. Mothers can recognise their own baby from tape recordings and can, sometimes, judge what the cry indicates.

Reflexive vocalisation is a precursor to expressive language, developing during the first couple of weeks or so, to be followed by *cooing* at about one month. Like all stage-related activities there is wide variation in the ages at which they are reached. By about six months most babies have started to *babble.* Sometimes they seem fascinated by one syllable and echo themselves, hence the use of the word *echolalia,* producing a 'babababababa' sound. Some parents detect the child's first word at this time; the word is more likely than not a form of babbling which is mistaken for a word. There is, however, an element of speech in *lalling* and *imperfect imitation* which can appear during the first eight to nine months, when the child imitates the intonation of speech and may seem to talk to himself.

Two general points about babbling: the first is that it is almost certainly not the result of imitation of adults, for most children born deaf babble for the first nine months, although they do not develop speech inflections. All all children are likely to produce sounds not present in their native language. Secondly, there is no general agreement on the relationship between babbling and subsequent language development, although it seems likely that babbling is a necessary preliminary to the gaining of full articulatory control of the organs of speech. From the very beginning, even during the first few hours of life, there is evidence that language involves a *two-way process* of communication. At less than 24 hours of age a baby may show some degree of *synchronisation of movement* with an adult voice and when, a few months later, they begin to have prelinguistic conversations with an adult each takes it in

turn to utter. As one writer has put it, babies teach their mother to talk.

Words

A distinction is made between *comprehension* and *expressive speech*. Common sense says that comprehension precedes expression, but some studies have argued the opposite and the precise relationship between the two is uncertain. However, the comprehension of single words is often attributed to children well below the age of 12 months. It is probable that at this age they are responding more to intonation than to the actual word or phrase used. By the end of the first year one can expect the emergence of *true speech*, with words or sounds being used consistently and intentionally to refer to objects, people or events. This speech may consist of words that no adult has uttered; the criteria are consistency and the use of the sound as a reference. Thus the nine-month-old daughter of the linguist Werner Leopold said 'dididi' as a word of disapproval.

These first words are often *holophrases*, intelligible only when one is aware of the context. It is essential that anyone attempting to observe early language development bear this in mind.

Once the first word has appeared there often follows something of a plateau and the next few months may pass with little or no addition to the vocabulary. This does not mean that language acquisition is at a standstill, for the development of comprehension continues but in a less noticeable way. When the first nine or ten words have been achieved there follows a rapidly increasing expansion in vocabulary. It has been estimated that between years one and six an average of five to eight words are added daily.

This rapid growth is not haphazard. Nouns come early, followed by verbs. Prepositions, adjectives and adverbs do not generally appear until the end of the second year, followed by pronouns and conjunctions. The British linguist *David Crystal* has made an extensive study of the pattern of language emergence; an outline of his work is given in the book he wrote with *Jean Cooper, Studies in Language Disability and Remediation* (Edward Arnold, 1979).

The First Sentence

At about 18 months a child is likely to reach what is for both parents and linguists alike the most fascinating stage: the production of a sentence. Although some children produce complex sentences immediately, for most the earliest consist only of two words—for example, 'mummy gone', to be contrasted with 'all gone' which is properly regarded as a one-word utterance. One 22-month-old produced three utterances when left in a hotel room alone :

'Mummy gone, daddy gone, all gone, bye bye.'

The fact that these early sentences usually contain only nouns, verbs and adjectives gives speech a telegraphic quality. The child commonly uses a combination of *pivot* and *open* words—that is, functional word like 'more' plus a content word. The use of the rudimentary sentence construction can be seen in the way a child will shorten in imitating. He may hear 'I am going to the shops', but is likely to repeat 'Go shops'. Observations on the *pivot/open combination* led some authorities in the 1960s to postulate that this was a *linguistic universal, i.e.* that all children had this combination as their first grammatical rule. More recent research has shown that not only does the rule not hold for children speaking different languages, but it is not totally applicable to those speaking English.

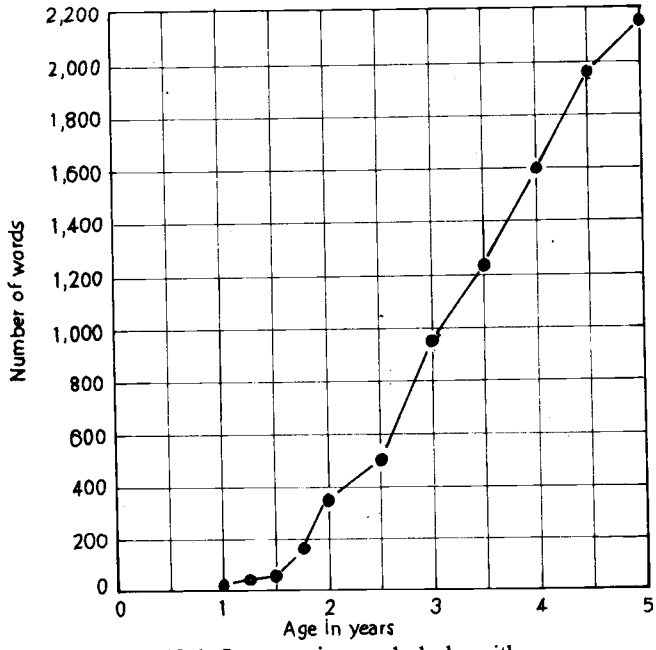

Fig. 19.1. Increase in vocabularly with age.

Adapted from L. P. Lipsitt, 'Learning Processes of Human Newborns', Merrill-Palmer Quarterly (1966).

The Acquisition of Rules

After the first sentences, with their primitive, usually two-word constructions, comes the development of *length, complexity* and *precision. Roger Brown's* work is particularly pertinent here, for he has traced a fairly regular pattern in the acquisition of rules.

Children elaborate and clarify their utterances by using additional 'functor' words—prepositions, adjectives, articles and pronouns—and also by the use of *morphemes* or inflections to nouns and verbs. The general sequence is as follows:

1. The inflection *-ing* to make *running, jumping*, etc.
2. Prepositions, *in* and *on*.
3. Plural s: *cats* and *dogs*.
4. Irregular past: *saw, was*.
5. S possessive: *mummy's* or *daddy's*.
6. The articles: *a* and *the*.
7. Regular past: *jumped, played*.
8. Third person present endings: *jumps, plays*.

The *stages* of *acquisition* have been seen thus:

1. Little or no use of inflections.
2. Occasional use but with many omissions.

3. Correct use but with overgeneralisation: 'I danced and I eated a cake.'
4. Fully correct use, which may not emerge until the sixth year.

It must be remembered that the acquisition of these rules does not proceed in a straightforward fashion. Some children will learn a rule and then fail to use it as their vocabulary *increases* and not all children obey the sequence noted above.

Transformational rules come next. As elementary transformation consists of adding to, taking from or reordering a sentence in order to alter its underlying structure. As an example, take the sentence:

I can write in French.

A *negative transformation* is: I cannot write in French.

An *interrogative transformation* is: Can I write in French?

Children acquire many transformational rules well before they go to school.

It is now thought that the acquisition of other language rules continues further beyond the age of five or six than was once imagined. *Passive transformations* are not fully used and understood until after the age of six and one study carried out in 1975 found that certain rules governing word endings may not be established until the age of 17. Some adults, of course, never achieve a mastery of the rules in full.

One further warning: Many of the data on which the above have been based have been derived from small samples of middle-class children. Largescale surveys of a more representative nature are needed to test the generalisability of what has been so far suggested.

Individual Differneces in Language Acquisition

If all other relevant factors were held constant there would still be enormous individual differences in the rate of language acquisition. It is customary to expect the first word at about 12 months but a delay of a further four or five months is common. Even if a child has reached the age of 18 months without true speech there are no grounds for assuming automatically that backwardness is indicated. If the child appears not to understand what is said and is not walking either then there may be cause for concern. A difficulty arises here, though, since it is very easy to be misled into imagining that a child understands speech when a correct response is made not actually to the words but to a gesture or to the tone of voice used. And judgements on individual children must always take other relevant factors into account:

Sex differences are often cited, girls being perceived as more able than boys. It is true that they talk earlier and have a larger vocabulary than boys up to the age of about three years, after which the differences largely disappear until adolescence when girls again show superiority in some verbal tasks. Girls, too, tend to speak more clearly than boys, more of the latter being referred to speech therapists.

Family structure is related to the rate of language acquisition, the larger the family the greater being the delay. This finding holds up across all social classes, although its effect is less among more affluent families. A possible explanation is that when there are many children around the general level of language is lower than when much of the talking is from adults.

Adult contact with children outside the family is another contributory factor, findings on which have lent support to the view on families noted above. Barbara Tizard's work on children in residential nurseries looked at this topic and found a significant relationship between the children's language and the way that adults spoke to them. Adults who used informative language and who took time to answer questions contributed most to more rapid language growth.

Social class differences have been the subject of much debate. One student is alleged to have misinterpreted the findings to such an extent that he wrote in an essay: 'Professor X has stated that the working classed communicate in grunts.' The professor to whom he was referring was probably *Basil Bernstein,* who suggested, in the early 1960s, that middle-class parents encourage language development in general and the use of abstract concepts in particular. This leads to the middle-class child using a more elaborated code, while the working-class child uses only a *restricted code.* Such a restriction has been seen as putting working-class children at a disadvantage when they enter school, linguistically a middle-class institution.

The early, rigid interpretation of Bernstein's original thesis has been modified. Bernstein himself has noted that working-class children have access to elaborated codes but do not use them as readily as their middle-class peers. The current view, examplified in the work of *P.S. Dale* in America, is that middle-class children have a richer vocabulary than those from poorer homes but that there are far smaller differences in language complexity or the development of grammar than was hitherto thought.

Bilingual children are generally delayed in the development of both languages but the delay is relatively brief. There is some suggestion from recent work that having access to two languages increases the ability to process material verbally but this work has so far been based only on a small sample.

Language and Thought

Roger Brown sees the rate of development of language structures as related to their semantic and syntactic complexity: that is, the more complex the structure the greater the cognitive powers that are required to master it. Studying bilingual children one can observe that they will tend to choose to express themselves, when there is a choice, in the simpler structure.

Piaget's notion of stages lends itself to an examination of the stages of language development within his framework and research has broadly supported his view. Thus words (which are symbols) do not appear until the child has reached the sensory-motor stage when children have a capacity for mental representation. But Piaget's ideas on language extended further than a simple tying to stages. To him thinking arises from action. In turn, language arises as a symbolic aid to thought. Thus, while *one can have thought without language one cannot have language without thought.* There is some experimental support for this view. Work with deaf children, for example, shows that thought can occur without language and one has only to consider music or painting to see and hear examples of thought without what we conventionally refer to as language. Piaget's view that language is an aid to thought is borne out again in studies of the deaf when it is evident that with impoverished language skills concept formation is both less efficient and less flexible.

However, the Russian psychologist *L.S. Vygotskii* disagreed with Piaget. He saw thought and language as having two different genetic origins. Although he agreed that action comes first, he placed great emphasis on our learning to categortise. Language, which has its own, separate origination, then

comes to represent categorisation and so *thought becomes dependent on language*, rather than the other way round.

The American psychologist *Jerome Burner* moves away from the cause and effect argument. He asserts that language is no different from any other symbolic activity in that they all involve categorisation and the use of hierarchies, i.e. some words are more important than others. Children use these principles first in language but it is likely that thought and language have common origins. Language is, for Bruner, a part of the process of cognition and it is futile to chase after causes or effects.

Roger Brown concluded a summary of the evidence on this topic in 1973 thus. 'Unfortunately we know next to nothing about what language has done for thought and we cannot even be sure that language has importantly affected the power of thought.'

Innate Structure or a Learned Skill ?

The debate on the relationship between thought and language may seem sufficiently esoteric to remain happily between the pages of textbooks. The debate on whether language is learned or the result of the maturation of innate structures has spilled over into a vastly greater area. Despite a welter of papers and much intellectual heat there is, though, still no agreement on all sides on the origins of language.

For *B.F. Skinner* and the *early behaviourists* the solution was simple. Children utter and hear a range of sounds. Some sounds they utter are selectively reinforced—that is, they are rewarded by parents. 'What a clever girl, did she say dada then, say it again, go on, dadada. . .' Language to the behaviourist is no more than a set of *sequential units held together by associations*. The word 'more' comes to be associated with a second spoonful of food, or another exciting bounce in an adult's arms; 'car' is associated with those things on wheels, at first all things on wheels and later with a specific range of objects. And so the Chinese child learns Chinese sounds and the English Child English sounds because these are what they are exposed to.

There are, however, arguments against this rather simple view. One, indeed, is that it is too simple, for it rests on the premise that every word is learned separately, for every word has to be heard or read before it can become associated with anything else. *George Miller* has calculated that it would taken an English speaking person more than 100,000,000,000 centuries to listen to *all* the possible sentences of more than 20 words in his *language*. The opponents of the Skinnerian view assert that what governs language is not a set of associations but a *generative grammar, i.e.* a *set of rules* which enable one to generate all the acceptable combinations of a language without necessarily having heard them all.

A further argument against the Skinnerian view is that it rests on the concept of language as a *surface structure*—that is, it is conceived of entirely in terms of units which are written or spoken. At first this may not seem to be an objection: of course language is either written or spoken. The point of the objection is that surface structure assumptions are not enough to explain some of the phenomena of language. One phenomenon that it cannot explain is the way that one set of words can convey two meanings. What, for example, does the following sentence mean?

They are cooking apples.

Are people doing something to fruit or is a person describing apples as sour rather than sweet ?

A similar attack based on the limitations of surface structure comes with the observation that the order of words is not enough to account for grammatical relations. It is possible to write two sentences, each with the same word as a subject, but in one at the beginning of the sentence and in another at the end :

Frank gave the book to Elizabeth.

Elizabeth was given the book by Frank.

The shortcomings of surface-only features led the linguist *Noam Chomsky* to put forward the idea of a *deep structure* to explain some of the phenomena that earlier theorists could not. If one follows Chomsky's ideas a person producing a sentence *begins* from hypothesised deep structures which are transformed into the *surface strings* that we read or hear. Understanding depends on the conversion of a surface string to a deep structure. To make sense of what we hear or read we go from an ambiguous set of words to the underlying representation in order to decide which of several representations is the most appropriate.

A frequently quoted example of the way that two sentences can have an identical surface structure but different deep structures is found in:

John is eager to please

John is easy to please

Both have the same surface structure yet in one John is the subject and in the other he is the object.

Equally, two sentences can have different surface structures but identical deep structures:

Mary ate the apple.

The apple was eaten by Mary.

Chomsky argues that *all languages have the same deep structure*. Differences between one language and another are the differences in rules for transforming the deep to the surface. What is more, we are innately equipped with a knowledge of what language is all about. We have from birth a special sensitivity to those features of language which are universal, *i.e.* which are common to all cultures. To support this view, Chomsky cites the way that children formulate rules themselves rather than slavishly imitating adults. The child who says 'I bringed the ball' is not imitating an adult model: he is using his capacity to generate grammar.

In more detail, Chomsky's view is that we are born with a *language acquisition device,* or LAD for short. The LAD can be likened to a box: sends sounds into it and it is so programmed that it will pick out key features and extract the rules of grammar. He did not, incidentally, assume that the LAD will work on its own, whether the child has experience of language or not. What the experience of language does is to set going the process which in essence is innate.

By the early 1970s Chomsky's ideas were under fire. There is, after all, a fundamental circularity in arguing that we learn a language because we are wired up to learn language. What is more, the LAD implies that the child is passive: in goes a set of sounds and out comes grammar automatically.

Such a view of passivity is no more acceptable to theorists who perceive children as essentially active than was the associationist approach of Skinner. Theorists writing recently see children as seeking to *extract* meaning from their environment, attempting actively to make sense of what goes on around them. So followers of writers like *Bruner*, *Goodnow* and *Austin* see children as using language acquisition strategies—that is, they acquire language through a process that is a form of problem-solving.

But the idea of language as problem-solving is in itself of limited value. It may be a powerful notion of what is *necessary* for language acquisition, it is not a description of what is *sufficient*. In other words, it offers nothing new to the basic question of the essential nature of how language is acquired. As *Richard Cromer*, writing in 1980, put it. . . . we must admit that language acquisition. . . . remains a mysterious process.'

For an age-by-age overview of language development.

20

A Functional Approach to Language Development

One of the dominant figures in the field of linguistics in the past decade. Noam Chomsky, gave the first adequate explanation for the generative aspects of child language. In so doing he appeared to postulate a return to a simple nativist model of language development in which language is held to be innate, possessed by human beings solely because we are human. When phenomena are established as innate or species specific it is futile to search for influences which will promote or refine their use, and theories of language acquisition grounded on the notion of innateness offer little hope for environmental intervention.

It is now becoming clear that Chomsky's model of language acquisition may be both limited and limiting when applied to the field of early education, as an essential tenet of a teacher's belief is a faith in the importance of the environment for early development. Although Chomsky's model does account for the fact that almost all children appear to extract syntactical rules on the basis of scanty and limited exposure to a non-didactic form of language, it leaves us with the disconcerting reality that there are great differences in language ability from child to child. And so attention has now moved from the acquisition process itself, which almost all children accomplish effectively, to the *use* of these acquired language structures, which all children do *not* accomplish effectively and to which we attribute the language deficiency of many of our pre-school children.

This change of attention in psycholinguistics which holds such promise for those engaged in early education is a change of emphasis from what has been called the *rules of usage* to the *rules of use*, or a change of emphasis from the rules of syntactical competence to the rules of knowing what to do with language in order to communicate effectively and appropriately (Widdowson, 1979). We might be inclined to think from our experience with other kinds of skills, such as playing bridge or chess, that the child learns the rules and, having learned them, goes on to learn how to apply them. But in what sense is the person who has just learned the rules of the game a good player? The real skill lies not in having knowledge of the rules, but in developing an ability to deploy these in a variety of situations, to create strategies while at the same time reacting and accommodating to the strategies of a partner. Just as familiarity with the use of rules, in addition to mere knowledge of the rules, separates the good

from the bad player, so it is with language. The child who is "good at language" is the child who can identify the right occasion on which, to use it, who can make language work for him or her appropriately and effectively in a school situation and out of it (Widdowson, 1979). It is to this question of language use that we now turn out attention rather than to the acquisition of rule-governed sentences or correct speech in young children.

The chronological sequence of learning of rules followed by the application of these rules is one which might be challenged in explanation of language acquisition. In a sense we do not learn the rules first and then put them to use, but just the converse. It is more like being thrown unprepared into a game, and, by dint of playing well or badly, slowly picking up the rules. The infant in the first years of life, having acquired great skill in interacting with others in the family (that is, knowing the non-verbal rules for interacting), picks up very easily the verbal ones that accompany them. As one linguist puts it, children *learn to mean* before they *learn to speak* and only learn to speak because they have first learned to mean (Halliday, 1975).

For instance, if we observe 1-year-old children, it is clear that they are aware that the world is made up of people and nonpeople; that people have plans and intentions but objects in the environment do not; that you can regulate other people by crying or cajoling; but that this is wasted on the eat or the table. These fine existential distinctions pre-date the use of language and indeed are probably the major causative factors in its onset. Building on the ability to recognise "the other" and seeing this other as something that can be communicated with, the child first uses language for the social purpose of interacting with and regulating other people as well as for the purpose of getting them to do what the child wants (Halliday, 1975). In a previous paper I used the analogy of language being the old shoe which the child slips into with ease and familiarity (McKenna, 1977). It fits the child's needs so comfortably for the simple reason that it was made to fit these same needs when it was first created. Its structure is matched to, is isomorphic with, the structure of the nonverbal interaction the child is already engaged upon. For example, recognition of the separateness from others is mirrored in language by the device of switching from "me" to "you" depending on the speaker. Further recognition of another's perspective is signaled linguistically by what are called deictic terms of "this" which becomes "that" or "here" which becomes "there," depending on who is speaking and who is listening. Yet another comfortable fit can be seen between the child's competence in asking, ordering, or pleading and the linguistic device of changed intonation or change of grammatical mood. Language to the child has an almost *deja vu* feeling when first encountered because it was created by our first speaking ancestors from the same mental categories—to suit the same social needs as those possessed by every child and every adult.

Language as Decontextualisation

Language therefore largely derives from social interaction and in its beginning is mextricably bound up with the here and now of such interaction. Nevertheless, its development as a tool of adult thinking and communication depends on its becoming free of any context, of any here and now elements. The decontextualisation of language means a lessening of dependency on other, nonverbal aspects of the situation in which communication is happening, like time, place, present perceptual evidence, and most important the rush of things inside one's own head. For one of the most constraining here and now elements that the child has to contend with is his or her own private thinking. It is constraining because

the child has to learn to make it public for the other person; to specify what is in his or her head for the benefit of others who cannot be privy to this domain of knowledge; to signal to them when previously unmentioned and therefore new knowledge is coming up; to recognise old information that speaker and listener can be assumed to share; and to recognise information that is old because it was mentioned earlier in the conversation. Knowing of the separate existence of the other person and being able to take up the other's perspective is a necessary prerequisite for launching on the language journey. But learning the numerous intricacies and nuances which detail this distinction is a long road which entails gaining control of many linguistic devices which allow you to specify what is in your head for the benefit of others (or by lying to specify *other* than what you are really thinking), until eventually language becomes communicable to anyone as any time. In other words, language and language alone comes to bear the full burden of communication, without gestural, intonational and situational props, culminating in the act of pure linguistic communication as in writing.

It is likely that these linguistic feats are accomplished by the same mental mechanism used in gaining an operational concept of number. As Piaget describes, children learn to "count" by slowly learning to "discount" such irrelevancies at spatial displacement, size, or any other perceptual attributes of the array. As with language we might say that by taking cognisance of their own momentary and idiosyncratic viewpoints, and by degrees slowly cancelling this out of the equation, children are transforming subjective appearance into objective concept. In learning both number and language structure, children take account of their own perspective and view it as one of any number of perspectives; thereby they are able to speak and count as if the private domain did not exist, and therefore they are able to make the private public and communicable.

In a recent study at my own university, we tried to help children appreciate where their private thoughts began and ended, examining the changes brought about by our intervention.* Simply put, we compared the children's ability to tell their teacher a story from a picture, under two conditions: (1) when both teacher and child were looking at the picture; and (2) when only the child was looking at the picture, due to the fact that the teacher had her "sore eyes" bandaged. Subjects were a group of 4-year-old children from a disadvantaged background. A previous study had shown that when the picture was perceptually accessible to a child alone, the child produced more complex and compound sentences as opposed to strings of juxtaposed words (Bokus, 1978). Our study examined the nature of these changes, analysing some of them in detail. We noted that in the situation of nonshared perception, the child strived, and with some success, to speak more explicitly and less ambiguously. The following is an example of a disambiguating phrase which helped to identify information for the blindfolded listener:

/ and a woman *that was looking in the shop*, looked too /

or the following self-correction which helped to clarify the referent:

/ it s/c the cat was looking /.

(self-correction)

* For details of this and following examples, apply to Department of Psychology, University College, Dublin, Ireland.

Also it was noted that children used the adult device of anaphoric reference, that is, of introducing a new topic by the indefinite article "a" followed by the definite article "the" when next encountering the same topic four times as frequently in the blindfolded conditions than in the shared perception conditions, thus:

/ This day a mammy went up to the bedroom /

/ and the mammy was cross /

and again:

/ Once upon a time a boy tripped over a dog /

/ And he throwed his ball on the dog /

These examples from a nonshared situation show the child's sure control over the mechanisms for introducing new and old information. The use of the indefinite article in "a dog" introduces this dog as one of many others that it might have been, whereas the switch to the definite article in the next line has a co-referential function in which "the dog" refers to the one just introduced. Likewise, "he" and "his" in the second line also refer to "a boy" unspecified but now identified as the same as the previously mentioned one. Thus in two short utterances we can see how words come to be based on a series of shared assumptions and rules for cooperating in conversation as well as a number of devices for the "stitching together" of text.

One results show the reserves of skill possessed by socially disadvantaged children in the difficult art of telling and maintaining a good story. It has been suggested that one of the main reasons that children from disadvantaged homes are poor at language is that they fail to recognise their listeners' communicative needs (De Villiers, 1978). This study would appear to show that they are in no way insensitive to these needs, but that they do require extra assistance in recognising them. For example, they may not respond to the usual need of the teacher of "playing with words," which is what most language lessons really are, but will respond to the teacher when she has a real need, like not being able to see. (It is interesting that on subsequent days, the mothers of these children enquired about the teacher's eye condition, showing that the children had regarded the episode as newsworthy—probably because they felt they had played an active part in helping the teacher.) This study does not give any evidence of whether socially disadvantaged children are better or worse than their counterparts from more privileged socio-economic backgrounds, but it does show how some of the children were influenced by a changed context which enabled them to call on their own resources and competencies when they perceived a real need for communication. We had managed to create good and bad conditions for the telling of picture stories, and we had identified the good condition. The same child with the same teacher could in fact substantially alter his or her language output when perceiving a meaning and an urgency in the situation. The children in the conditions of shared perception were performing at an inferior level because they presumed that since *some* information was shared, *all* information was shared. Here the discourse lost its communicative intent since the child was led into the trap of believing that since the adult could see the picture, she could also see inside the child's mind. To revert to an earlier distinction, the child possessed the rules of usage, syntactical as well as textual, but needed as opportunity to put these rules to use. We now go further and make the claim (a claim that awaits empirical substantiation) that by giving the children an opportunity to put these rules to use of having their

competence exercised and stretched as it were we were in fact altering that competence and making the children more assured of the rules. For as we noted earlier, learning the use to which language is put is not merely a by-product of knowing the language, but the most essential, most difficult, and most needed exercise of these pre-school years. The children do not merely learn a language and then use it on every possible occasion, but rather *vice versa*. They see language working for themselves and for others, and through this they learn its structure and its meaning.

What are the implications of stressing the functional aspects of language and how do we create meaningful situations which afford an opportunity for the exercise of language competency? The first and most simple answer to this question is that we do not need to create such situations in the classroom. They are all around us awaiting our exploitation. Every nursery day provides opportunities for informal interaction between child and teacher at snack or toileting time, hanging up coats, changing shoes, and doing all the other business of the day's living. Just as the young child learned to speak by learning to mean and to interact with the others in the environment, so too there are many meaningful and familiar situations in which the child is an expert, or interested in becoming one, such as typing laces, fetching a snack, getting ready for "home time," and all the other rituals of school life. And just as with the infant who learns to mean before learning to speak, so it is with the 4-year-old: It is likely that it is out of these familiar and intelligible situations that language will most easily emerge. These are the pivotal activities for language lessons and not mere accidental trimmings to the school day. They have a meaning which is clear to the child, and language under such circumstances comes easily.

Once we fully grasp the principle that language is created and strengthened against a background of living expression, our daily nursery practice takes on a new meaning. For example, allowing children to talk about what has happened at home or outside, asking them for news that we could not have heard but for them, gives them a real feeling of communication. If a child knows something that the adult cannot know and senses a corresponding curiosity on the adult's part, the conditions are set for good conversation. It is in this light, too, that we must examine the question and answer procedures of the classroom. Most frequently the meaning of such exchanges is that of the child guessing what is going on inside the adult-questioner's mind. We know and accept that the eventual mode of teacher-pupil interaction is likely to be that of questioning leading to one particular answer (Sinclair & Coulthard, 1975), but we might ponder the advisability of such a question and answer technique with children of 4-, 5-, and 6–years coming fresh and unschooled from home. True, questions are asked at home, but children ask them of adults just as often as adults ask them of children. What is more, they are always asked on both sides to build up a conjoint meaning in which both are contributing some part. The class-room question and answer session starts off from a plan or strategy in the teacher's head, often from a curriculum plan laid out on a page that can be seen in the mind's eye. For the teacher it has both context and intention: The context of a term's work and the intention of getting from point A to point B. But the children cannot see the plan or strategy along which the adult is progressing, so the situation lacks context and intention for them. It comes out of nowhere and disappears at the end of the lesson, and the children are not quite sure why they are going through this session beyond the conversational rule of trying to follow discourse that is directed their way. Is it any wonder that under such circumstances the children's language often deteriorates to a listless monosyllable and they fail to produce at the level of their true competence ?

Metalinguistic Activities

Much of the life of school is likely to be perceived by children as being of the kind in which it will not make any difference whether one speaks or keeps quiet: a given childs intervention will make no substantial impact. It is likely that the lack of any substantial verbal interaction between teacher and children from disadvantaged homes springs from the fact that, unlike the child in the blindfolded situation, the child in the typical classroom sees no meaningful part to play. Sociolinguists have told us that the childrens language is the means by which they are socialised. If the home background is such that conversation is reserved for the utilitarian purposes of eating or sleeping, of switching on or off television, with little manipulation of speech and language for its own sake, for story telling or making verbal games, then the latter activity is not seen to have any use or meaning for the child. A child from such a background has no experience in using words and speech for these purposes or of seeing anyone else do so. Insofar as it is just these same activities of story telling, speech manipulation, and talking about speech which characterise the nursery school day, children from disadvantaged backgrounds will tend to perceive these activities as alien. When young children leave home to enter the world of pre-school, they have two considerable adaptions to make: One is to the new group life, in which each child is sharing an adult with a large number of other children rather than having the exclusive attention of an adult as at home; the second is the school way of talking and dealing with talk. But there are many homes where parents, for part of the day at least, do engage in a variety of speech activities, and by giving their children practice in these activities, encourage them to try a variety of speech roles, such as whispering, saying prayers, telling a story, saying a poem, having a little chat, or just speaking nicely. It would appear that the more home is like school in this way that is, in giving practice in a variety of speech roles the easier it is for the child to adapt to school and to the school way of using talk although the less the child needs to adapt. The more home is unlike school, the more difficult it becomes to switch to alternative speech roles for lack of practice in, for example, switching from whispering to story tellingand the more the child needs to adapt.

Most of our language lessons, and indeed much of our other verbal exchanges in school, are of the type Say this after me, Now you tell me a story, Give Mary a chance to speak. These are what has been described as metalinguistic activities, or talking about talk rather than communicating by means of talk (Mattingly, 1972). We have suggested that some children may hear very little of similar kinds of activity in their own homes. However, it is known that in many homes children as young as 3, and even 2, are beginning to talk about language. Whenever children talk about what you can say or cannot say, what is a nice thing to say or a bad thing to say, they are engaged in metalinguistic activities. They are talking about language instead of by means of language. The following example shows how a 3-year-old makes language usage the subject of discussion. Adult and child are sitting in a relaxed mood, leafing through the pages of a picture book.

C.	Will I read this?	A.	Yes please
C.	(Pretending to read) OK Theres no monkeys	A.	Is there not?
C.	No, say Why is there not?	A.	Why is there not?
C.	Cause, cause theys only Jane and Peter		

The question Is there not? asks only for a yes or no answer, whereas questions in English which begin with wh ask for a detailed reply, which in this instance the child had already prepared and intended to deliver. Language structure rather than meaning per se was the central concern in the mind of the child. I think the above example also suggests that young children, once they are embarked on a stretch of discourse, find it easier to follow their own trail rather than engage in a dialogue which demands constant adjustments of perspective and a lack of control over subsequent utterances. (It is for just this same reason that we as adults struggling along in a foreign language can prepare a beautiful phrase for execution but are baffled and disconcerted when our listener, understanding our utterance and totally taken in by the spurious level of fluency, pours forth a response at the same level of complexity.) But although children may not relish a dialogue parter who switches the lines they have written in advance, they do demand more than a sleeping partner. They need an auditor who is at least active enough to show that the message has been received. The following is one of the many stretches of dialogue from our tapes which show the irritation of the child when the adults standards of attention fall below an acceptable level. The conversation has been going along happily for some five of six minutes, with both partners engaged in passing the ping-pong ball of conversation to and from, when, as so often happens, the adults attention wanders off, only to be brought back sharply by the child.

(Child looking at picture)

C. What is that? said the cow, Betty — A. Mmmmmmm

C. What said that brown cow?

(What did the brown cow say?) — A. Mmmmmmm

C. (answering his own question)

On them birds, brown cow

(They are birds, said the brown cow) — A. Mmmmmmm

C. Well dont speak to me like that

Well Im not your friend.

Oh you better not.

And in this next stretch of dialogue, one can almost hear the satisfaction of the child as he asks for and eventually receives a Roger over and out assurance that his message has been received.

C. Cows, pigs, birds, cows

And they liked (Graham/Grain)

dont they

Arent they? — A. They are

C. Arent they allowed to get in? — A. They are

C. Said yes Betty — A. Pardon

C. Yes — A. Yes

It would appear that children ideally need to have an adult available to react to their speech, and being present in the same room is a different thing from being available. But the adult, if he or she

wants to prolong the conversation, should not control its direction, as this results in a loss of predictability for the child. The child in the two examples above is striving hard to keep control of the tempo of the conversation, because in this way he can match the mental effort or pace the information processing to his own speed and thus can keep up the verbal exchange with skill and ease.

It might be considered that the kind of verbal interaction described above a descriptive of middle-class children or prescriptive of a one-to-one relationship with an adult, and therefore is of little relevance in the pre-school situation. True, a teacher is not the middle class mother, celebrated in psychology textbooks as she brings her child from room to room while doing the housework, setting up little islands of intersubjectivity for interactive dialogue. But the pre-school classroom is a place where play is seen as of great importance and significance in the childs development, and the kind of verbal activities we have been discussing share many of the aspects of play-in fact are considered by many to constitute verbal play. Just as in play we see an uncoupling from reality, where a doll or a towel rolled up can be a baby, so in verbal play we see an uncoupling from real meaning, an as if quality into which the child enters. I would venture to suggest, from my experience of listening to children on tape in a variety of settings, that opportunities like the above for talking about talk are most likely to take place where there is not a great deal of mental exercise going on, or where the information processing demanded is negligible. This would describe the childs activities in ritualised make-believe conditions. The occasions when the child is most likely to play with language appear to be during those apparently aimless and desultory exchanges between adult and child which appear to provide security and psychological space for the child to wander linguistically. We do know that children from disadvantaged social backgrounds very often have great difficulty in playing in make-believe activity. But shouldnt this deficit now be the focus of our attention? All children from all backgrounds have, at least in rudimentary form, a life of the imagination. As well as relying on the meaning of real life, the teacher can call on that second.

But children from a cultural background in which language is not a subject for discussion, to be played with and dissected, will have the added handicap of being inexpert at adjusting or switching codes. We have seen from the evidence of our tapes how children revel in the game of talking about talk, and we have tried to identify the kind of play situation where this activity might emerge. It is sometimes said that children from socially disadvantaged backgrounds are primarily in need of a structured programme, having little structure or ritual in their own homes. If we add to this the fact that out of school they appear to have a great deal of time for free and unsupervised play, we might be tempted to conclude that they do not need any opportunity for classroom play. But is it possible that street games or games involving physical activity are not such rich sources for the life of the imagination as puppets, drama, and make-believe verbal games.? One thing we do not know, and we need to know, is how to best foster the life of the imagination in all our children, a human accomplishment no less than that of language. In looking over the transcripts of our childrens narratives, it occurred to me that it was just this aspect of language that we had failed to capture. The stretches which occasioned us the most amusement and respect, and caused us to lose sight of our count of indefinite articles, were those that sober psycholinguistic science had failed to grasp. This is not to conclude on an obscurantist note, but rather to recognise and rejoice more adundantly in the phenomenon of our childrens language.

For in what sense could a count of disambiguating phrases or a description of socio-economic deprivation capture the drama of 4-year-old Edwards story.

A little girls mummy put the little girl in the bed
And the teddy bear was looking
and she was talking to the doctor and the doctor said
Youll have to stay in bed
Youll have to keep that little girl in bed for two months
Dont let her go to school and dont let her out to play
Just, just put new pyjamas on her
and he went
and thats the end of the story.

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21
Social Development

The Human Being: A Social Animal

One of the quickest ways to produce symptoms of insanity is to isolate a person as totally as possible. In Britain there is a phrase 'to send someone to Coventry' meaning to refuse to associate with that person. The origin of the phrases is uncertain but appears to be traceable to the Civil War when certain prisoners were sent to the city of that name.

A more drastic isolation is observable in the so-called stimulus deprivation experiments when people are isolated not only from human contact but from all other contact as well. They are placed in a bath of water which is kept at blood heat, in a darkened room with background noise so balanced that there is no detectable change. At first most people experience a sense of peace but within a very short time they begin to hallucinate.

Both the laboratory experiment and the practice of sending to Coventry point up the fact that humans are social beings—that is, we are almost as dependent on contact with others as we are on food and drink.

Characteristics of Social Development

A definition of social development is *the acquisition of the ability to behave in accordance with social expectations.* A less formal definition might be 'learning the rules of the game'.

The process by which one learns the rules is called *socialisation*, a process which includes three components :

1. *Learning how to behave.* This involves first of all coming to understand what the rules are and then learning to obey them.
2. *Playing approved social roles.* Every group has its own defined roles that people are expected to play: parents are not supposed to behave like children; medical students are indulged but one they qualify they are expected to behave like doctors.
3. *Developing social attitudes.* Children realise the value of group membership and feel a need to join.

Variations on the Theme of the Social Person

Social people fit into the three processes of socialisation noted above. They are, as a result, accepted into the group with which they identify.

Gregarious people crave company, the nature of the contact being less important than its existence.

Nonsocial people do not fit into the three processes noted above.

Unsocial people are not sensitive to group expectations and so do not behave in an acceptable way.

Antisocial people do not behave in an acceptable way, not because of a lack of awareness of group expectations but because they wish to flout norms of behaviour.

Identification, Modelling and Role Playing: the Process of Social Learning

Identification is the process by which an individual behaves, or imagines himself behaving, as if he were another person. At a *superficial* level one identifies with a character in a novel, film or play and imagines oneself behaving like that character. At a *deeper* level, one imitates a person to whom one is closely tied emotionally.

Modelling one's behaviour on another is a form of imitation. Some children in play model themselves on their parents, probably unconsciously, and on their teachers much more consciously.

Role playing is a more elaborate form of imitation, in which a person takes on a more total aspect of someone else's behaviour. An example of early role playing is found in games like 'mothers and fathers' when children adopt the roles of adults, as far, that is, as constraints of age and the situation allow.

Examples of the power of role playing as a socialisation process can be seen in the way we give labels to other people. These labels may be based on some incident or on a series of incidents. So one child may call another a 'crybaby' or a 'nosy parker'. A teacher may call a child stupid or clever. According to role theory these labels then become *self-fulfilling prophecies*—that is, the children's behaviour is influenced by the way they think they have been labelled. As so often is the case everyday language bears out psychological theory: 'give a dog a bad name' is a phrase that sums up this point admirably.

Socialisation and the Stability of the Group

One of the major purposes of socialisation is the promotion of *social stability*—that is, ensuring that the group stays together as a cohesive whole. Groups that feel secure can tolerate a much wider range of behaviour; groups that are vulnerable demand a higher degree of conformity. Consider as examples of this the toleration extended towards the upper-class British eccentric and, on the other hand, the strict rules of conformity surrounding members of an ethnic or religious minority, especially one that is persecuted.

Group in this context has an elastic definition; it can refer to a subculture. Any society can have a number of subcultures within it. Children may belong to several groups or subcultures at any one time: one at home, one at school, one in the street.

Expectations felt by an individual vary according to sex. Roles open to girls are, in most Western

societies, more variable than those available to boys. For example, it is acceptable for an eight-year-old girl to wear jeans and join in boys' games; heaven help the boy who wears a skirt and pushed a toy pram. (See also Chapter 19.)

Table 21.1. Developmental Tasks for Childhood

Birth to 6 years
Learning to walk
Learning to take solid foods
Learning to talk
Learning to control the elimination of body wastes
Learning sex differences and sexual modesty
Achieving physiological stability
Forming simple concepts of social and physical reality
Learning to relate oneself emotionally to parents, siblings and other people
Learning to distinguish right and wrong and developing a conscience
6 to 12 years
Learning physical skills necessary for ordinary games
Building wholesome attitudes towards oneself as a growing organism
Learning to get along with age mates
Learning an appropriate masculine or feminine sex role
Developing fundamental skills in reading, writing and calculating
Developing concepts necessary for everyday living
Developing conscience, morality and a scale of values
Achieving personal independence
Developing attitudes towards social groups and institutions

From R. J. Havinghurst, *Development Tasks and Education*, McKay, 1972.

Expectations also vary by *age*. *R.J. Havinghurst* has drawn up a list of *developmental tasks* which have to be achieved at certain ages if children are to be accepted in their group (see Table 2.21). It must be remembered that this list applies to Western societies; it may not be valid in other cultures.

Development Patterns of Socialisation

The shape of the developmental pattern is one of increasing width: there is a steadily increasing range of people exerting an influence, from the members of the immediate family to the community as a whole.

The Early Years

Neonates behave in an *autistic* fashion: they seem non-gregarious, interested only in their own

bodily comforts. (This is not to say, of course, that they are autistic in the pathological sense.)

By about *three weeks* they are beginning to show some awareness of others, by waving and kicking in response to mother's arrival, by ceasing to cry when picked up and above all by smiling.

Smiling is one of the first signs of feeling to be looked for by parents. They may find themselves looking within the first days of the child's life, for smiles of a sort may be evident then—smiles, than is, which are little more than a turning up of the corners of the mouth. They often occur during sleep and seem not to be related to activity or state and therefore cannot be construed as 'true' smiles.

A gentle touch or jiggling of the baby may produce a mouth-only smile at one to two weeks and within a couple more weeks this smile has broadened to include the eyes as well as the mouth. During this period a human voice or vigorous physical activity can be added as smile producers.

From five to eight weeks voices become less and faces more important, especially after the smile links up with eye contact and becomes a piece of social behaviour rather than just a response to a stimulus. This is the time that what some regard as a 'true' smile emerges; without it the child's social relationships are gravely hampered.

Laughter shows much individual variation but usually appears around the fourth month as a response to vigorous stimulation. Its course follows that of the smile in that by seven to nine months there enters a cognitive component, *i.e.* babies laugh in response to something they appear to perceive as being funny, such as a peculiar walk or a deliberately funny face fulled by a parent. The physiological correlates of laughter and tears are, incidentally, identical: first there is a deceleration of heart rate followed by a quickening, suggesting that both are tension reducers. In this context it is interesting to reflect on the way that some people laugh when they are very nervous.

Laughter is contagious; that is, babies laugh more when with others than when alone—an observation that is true of most adults as well. As they get older children learn to laugh, or display joyous feelings in some other way, in a manner that is acceptable to their group, which frequently means that they are expected to exercise control over the more raucous behaviour of earlier years.

Affectionate behaviour covers a wider spectrum than smiling and laughing although there is much in common between the two. Affection has been defined by *Elizabeth Hurlock* as warm regard, friendliness, sympathy or helpfulness. It must be reciprocated if it is to flourish; as Hurlock points out. 'Love seems to be a two-way affair and grows best when it is both given and received.'

It may be objected that it is glaringly obvious that love is two-way. Much less easy to make any sweeping generalisation about is the amount of affection that should be given to a child. At this point there will be some who say that statement is meaningless—one cannot give too much. On the other hand, what to one person is the giving of affection is spoiling to another: there is a case to be made for a child needing the security of being controlled. Affection which manifests itself only as indulgence is likely to lead to as distorted an outcome as a withdrawal of love.

The earliest expressions of affection from a baby are essentially outgoing and physical. The gaze is fixed on the other's face and there is a rapid, 'all systems go', movement of arms and legs, within a few months developing into an active cuddling back in response to an adult's embrace. After the first year hugging and stroking become the favoured way for a child to show affection, to pets, toys and

humans and many pets become properly wary of the loving grip of a toddler. Once school is reached the overt physical expression of affection often diminishes, although it does not necessarily go altogether and there is wide individual variation in the amount that children will show of their feelings physically.

Reactions to other babies are usually first noted around the fourth or fifth month when there is some social smiling from one to the other. By the sixth or seventh month babies may stretch out to one another and by 12 months there may even be some rudimentary cooperative play.

The Pregang Age

For the first two or three years *the family* remains the paramount influence but from then on there is competition from *peer groups* and from significant adults outside the family. Attending a nursery school or pre-school playgroup can provide a good preparation for later encounters with peers. It has been found that those children who had satisfactory relations in the pre-school period found it easier to make friends once they were at school.

This period is most often studied through play. At first children play in parallel, happy to be with each other but interacting little. By three of four they will have begun to talk to each other while playing, will have the habit of selecting playmates and will have begun also to watch each other while playing.

The first day at *school* is a major event in childhood and the child's first teacher is a key figure in subsequent development. Of particular influence in the context of this chapter is the prevailing atmosphere of the classroom, which depends in turn on the personality of the teacher. A frequently quoted study examining this field is that published in 1939 by *K. Lewin, R. Lippitt* and *R. K. White.* Ten-year-old children took part in recreational activities led by instructors who adopted an authoritarian, a democratic or a permissive style of leadership. The authoritarian style produced children who were hostile to each other, the permissive style produced boredom and, in some children, hostility as well, and the democratic style yielded more productivity and less hostility. This work is by no means the last word on the subject; others have found that the most successful leader of all is the warm authoritarian. It is quoted here to indicate that leadership style can have a powerful influence on groups, and that this is an area open to experimental investigation.

Later Childhood and the Gang

This, from about six years to adolescence, is the age when the *more or less formal group,* created by children themselves and sometimes referred to as a gang, becomes increasingly important. It offers a relief from adult supervision and meets needs not adequately catered for in an adult-orientated society. It has much in common with the formal group like brownies or scouts but is not identical with them.

A typical gang is centred around play: the primary purpose is enjoyment. (Play here has a wide definition.) Gangs develop at about the same age that sexes voluntarily segregate themselves and a marked characteristic of a gang is *sexual exclusivity.* Indeed, in later childhood gangs are far more common among boys than girls. Other characteristics are:

The presence of a *leader* who is a member, rather than one imposed from without. This is one of the ways in which a gang differs from say, a scout group.

An identifying *name.*

The use of *secret signs* or passwords.

Identifying *insignia:* a badge or an item of clothing.

An *initiation ceremony,* mirroring the initiation rite common in many cultures at puberty.

Gangs can vary in size and in activity. Some devote themselves almost entirely to antisocial behaviour; others are entirely benign. What they all do is offer members an opportunity to measure themselves against others and to learn cooperation between peers.

The Development of Prejudice

Prejudice develops from *social discrimination,* in itself an essential component of social learning. Social discrimination refers to the tendency to make a distinction among people according to certain cues; without a measure of this skill one would not be able to behave sensitively to individuals with different social needs. It would be crass, for example, to behave in an identical fashion to a shy four-year-old foreign child as it would be a self-confident 10-year-old.

Gang membership fosters social discrimination, not always to the good since it encourages notions of the *ingroup* and the *outgroup,* the latter being, by definition, inferior. The key phrase here is 'by definition' for prejudice is *the tendency to judge others not by their personal characteristics but by the characteristics ascribed to them by virtue of their membership of a group,* whether the group be a race, a sex, or a religious belief. Three key elements in prejudice are:

1. Beliefs in the *inferiority* of those against whom prejudice is directed, based on stereotypes rather than experience.
2. An *emotional accompaniment* of beliefs ranging from cold indifference to outright hostility.
3. An accepted *form of treatment* of the despised group which may be a desire to have nothing to do with them or to persecute them.

Awareness of social differences is rare before the age of three but may grow rapidly after that. Prejudice is usually fostered by significant others, parents or peers, and can easily be fostered by prevailing moods in society especially in time of war when a government may deliberately whip it up. More rarely it is based on actual experience which becomes generalised to all others who share similar beliefs of racial characteristics or whatever is salient.

Prejudice is not only negative: it can fulfil a function in providing what *Gordon Allport* has called a 'psychological crutch'—that is, it gives a sense of importance and superiority to the person who is in need of such a boost.

There is a deeper explanation in that groups against which one feels prejudice are usually composed of people whose behaviour or beliefs are mysterious, unknown of little understood. The fear of the unknown is common and may have what evolutionists call survival value—that is, it is a characteristic that has been of value in protecting the tribe in the far distant past and still fulfils the same function. The opposite of fearing the unknown is foolhardiness.

Some Predictions from Social Learning Theory

One way of gauging the value of a theory is to see the extent to which it enables one to make predictions. This approach can be applied to any theory: political, scientific or social. Within the context of this chapter two topics can be studied to test the validity of assertions already make about the importance of socialisation and the power of the role model.

Social Deprivation

Some references have already been made to humans' apparent need for others in the mention of sending people to Coventry and the experiments on stimulus deprivation. These are examples of extreme deprivation; if there is anything in the theory of the importance of social learning it should be possible to set up others.

Animal studies have suggested that there are critical periods during which social behaviour develops. The Harlows in America, working with monkeys, have reported that animals reared in isolation seemed almost incapable of play. A number of studies on rats have shown that those who were systematically handled while young responded better to stress and learned faster.

The *effects of institutionalisation* provide a natural experiment for humans. A classical study is that of *Rene Spitz,* published in 1945. Children reared in a foundling home were compared with those brought up in a residential nursery attached to a prison for women. The second group received much attention from their mothers and were far more often out of their cots. The differences in outcome at the age of two were dramatic.

Social disadvantages can also be shown to lead to impaired social and intellectual functioning. Malnutrition has many effects, not the least of which is apathy among children. An apathetic child is unlikely to elicit or reinforce social stimulation from adults and so a vicious circle of further deprivation is set up.

A striking confirmation of the importance of social disadvantage comes from development work at the other end of the continuum from childhood—namely, the elderly. Studies of cognitive deficits in people over the age of 65 show that they occur more frequently among those who live alone.

The Model of the Television Programme

If what has been said about the power of significant others in one's life is true then there should be some evidence that the style and content of what is watched on television should have an influence on behaviour: viewers should model themselves on what they see.

An example of a study to examine this is the work of *David Laye, Roderic Gorney* and *Gary Steele* who, in 1978, published the results of their investigation of the effects of the viewing habits of nearly 200 American men. For a week some men watched tough detective-type films, others only programmes where people were kind to each other. A third group watched neutral programmes and a fourth were left to look at any thing they wished. The men's behaviour, rated by wives who were not told what their husbands had been watching, appeared to reflect the nature of the programme.

An example of a study of the effects of television viewing on children is that carried out by *M. S. Rabinovitch* and colleagues in 1972, contributing to the American Surgeon General's Commission, the Committee on Television and Social Behaviour. Children were shown either a violent or a neutral

episode and then compared in a test for awareness of violence. There was some evidence to suggest that the children who saw the violent story were less aware of violence when they were tested—in other words, they were less sensitive to it, and therefore were, possibly, more likely to be violent themselves without being aware of the true nature of their behaviour.

There is much to criticise in these and similar experiments. It can be argued that television reflects rather than creates a social mood, or that anyone affected by a programme will have a predisposition to act in that way anyway. Nevertheless, some support for social learning is provided.

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Social Development in Children

The process of socialisation begins in the childhood and continues throughout life. Among other things, what must be learned by children is: the power to inhibit, or to moderate the expression of unacceptable needs; the ability to transfer substitute; the habitual and automatic use of large number of approved action patterns (methods, manner and emotional attitudes) and ability to adopt to schedules (to do things at proper time, keep appointment etc.). It is assumed that, having acquired these abilities, the average child will be capable of establishing satisfactory interpersonal relations with the legal and conventional framework of society. When the child begins to behave in a predictable, expectable manner it will be on the road to being socialised.

According to McGuire and Havighurst[1] "Socialisation is the process of presenting alternate channels for individual together with positive and negative sanctions which will lead to acceptance of some and rejection of others." The authors emphasised the influence of social groups, formal and informal, upon the personality of the individual.

According to Young K[2] "Socialisation. . . . . means the process of inducting the individual into the social and cultrual world."

According to Bogardus[3] "It is the process whereby persons learn to behave dependantly together on behalf of human welfare and in so doing experience social self control, social responsibility and balanced personality."

According to Akolkar[4]—"the process of adaptation, by the individual of the conventional pattern of behaviour is described as his socialisation because it occurs on account of his integration with others and his exposures to culture which operates through them."

Durkheim[5] Gooley[6] and Mead[7] have presented their theories of socialisation, having emphasised upon the collective representation, social interaction, and the role of self-consciousness in socialisation respectively.

The child must understand the social heritage of his own group, and form conduct patterns that will bring him into effective adjustment to this heritage. This process is complicated by the many subgroup cultures organised around such items as age, sex, occupation and status. Each of these sub-

groups has its own district cultural pattern that the child must accept and follow in addition to the general cultural pattern of his particular environment.

It has been pointed out by Lewin (1931)[8] that the individual, including the child, is essentially a "closed system". Power (1933)[9] has emphasised the same point when he says that every child starts life as an egoist, regarding the world as his world and expecting much from it. The genesis of social functioning presents two major problems to parents and pedagogues. The change of predominantly egoistic infant to an adult occurs as result of adjustment to his social environment. The child is trained to act in specialised ways to specific categories of stimuli and situation.

We sometimes hear the derogatory expression, "he behaves just like a baby." The implications of such a statement is that some forms of conduct which might be considered quite appropriate in a baby are taken as evidence of social immaturity in a child. The implication is that one should progress from one stratum of social conduct to another. The level of social adjustment and socialisation that a child has attained is indicated by the reaction between his conduct and the normal adjustment for his age, and group in motor, emotional and abstract mental control.

Ghai (1978) conducted a study on physical growth and behavioural development of Indian children in Delhi. They found that the infants born to mothers from lower socio-economic strata were smaller and lighter as compared to those from highest economic bracket. Mukherjee (1963) found that socio-economic factors play an important role in the children's body development. Alamshaw (1962), having conducted an investigation on child-rearing practices among different cultural groups, found child-rearing practices and the social development of the child were affected by the culture.

The importance of child development experiences was clinically established by Freud. Attempts at generalisation of his theory of psycho-sexual development of personality revealed that the process and products of development are conditioned by the socio-cultural matrices under which an individual is brought up. The works of Anna Freud (1937) and Horney among psychologists and the cross-cultural investigations of Mead (1965), Benediet, Maliriowaski, and Kardiner (1967) and empirical studies by Mintern and Lambert (1964), Whiting and Child (1953), Sears *et.al.* (1957) and Whiting (1964) attest the fact that the type of experiences the child inculcates during childhood sets in certain patterns for social development of the child.

Social Development in Early Childhood: Hereditary traits begin to develop in infancy. Although the infant is influenced by learning, by social contacts and by conditioning, the inheritance plays a role in the development of child. Individual differences are apparent in child as shown by their responses to food, by crying, and motor activity. Early social experiences of the child are mostly restricted to family and these social experiences play an important role in determining the child's attitude towards social relationship and the pattern of his behaviour in his relationship with others. Foundations for later social behaviour and attitudes of the child are mostly determined by the home. Studies of social adjustments of older children have revealed that their social behaviour remains consistent as they grow older, thus emphasising the importance of good foundations. The baby has no conscience and no scale of values. He is, therefore, neither moral nor immoral but a moral in the sense that his behaviour is not quided by moral standard.

The most important forms of social behaviour to appear at this age are negativism, immitatism,

rivalry, aggression, quarreling, cooperation, ascendancy, selfishness, sympathy and desire for social approval. Many of these appear to be unsocial or anti-social rather than social, but each is important to the social development of the child and each plays an important role in the transition from an unsocial, egocentric child to a social one.

Social development in late childhood : Interest in poor activities, an increasingly strong desire to be an accepted member of the gang, and discontentment when away from it have given the name "the gang age" to the closing year of childhood. No longer is the child satisfied to play at home alone or to do things with members of his family.

From the time the child enters school until the physical changes at puberty begin to develop, the desire to be with and to be accepted by the gang becomes increasingly strong. Children who are socially unacceptable to their peers are usually either of the quiet, withdrawn, reserved type or of the aggressive, "problem" type that antagonise other children.

Factors Affecting Social Development : Indian Child

Family, parent child reationship and child-rearing practices and others become the carriers of the cultural inheritance. Thus social learning leads to the unique development of personality in a particular culture. Child learns the concepts of caste, prejudice, social distance, religiosity, moral and ethical behaviour from his parents. In Indian culture, various communities are divided into different castes, sects and creeds. Tribal communities have different way of life than rural or urban communities in India. Joshi and Daharwal (1977) conducted a study on child-rearing practices and personality of satnamee children. They conducted the study on satnamee mother and equal comparable non-satnamee mothers (20 in each) and the personality of their children (20 in each) children were fed at breast for a longer period and their toilet training was also started late. Satnamee children were comparatively languid and slow, socially clumsy and vague. Broadly speaking, tribals do not subscribe to the more popular streams of Hinduism, but within the confluence of Hindu religion they chart their own way of life. Though the orthodox rural Hindus consider them socially inferior. A tribal community presents unique socio-cultural group which share many facets of language, artifacts, ideas, ideals and techinques with the Hindu society at large. Yet out of this common heritage, beliefs, activities and interest they have maintained their separate identity in religious rites and some social rituals. Modernisation and subsequent changes have influenced the socialisation process of Indian child. The spectacle of a younger generation diverging even more widely from the standards and ideals of the past, cut adrift without the anchorage of respected home standards or group religious values. New social values are taking the place of old value system of traditional society. Modernised families are giving lesser importance to casteism and old values. Intercaste and inter-religion marriages are becoming popular. Industrialisation has also affected the socialisation process of Indian child. Due to these changes, the social roles of the parents are also changing. In old traditional Indian society womenfolk were not expected to go out of home, to seek employment opportunities. Now the female child, in a urban society, is trained by her parents, to take up any job after completion of her formal education.

Hassan (1976) found that social prejudices as well as negative self-image of children was associated with their punitive parental discipline. Negative self-image was found to be associated with prejudice more in the children of punitive than those of persuasive parents. In other study Hassan (1974) found

that authoritarianism and neuroticism in children were associated with harsh and punitive parental discipline. Carstairs (1957) observed differences in child rearing practices and family pattern among castes. He indicated that these differences influence the deep care of personality. A number of investigators (Taylor, 1948 Koestler, 1960, Kali Prasad, 1964) have pointed out that Indian society is based on heirarchical caste structure and joint family system, where obligation to caste and family is given much higher priority than obligation to self. These studies indicate the important role of culture in the social development of Indian children.

The family, the community, the school and various other socio-cultural group are responsible for originating various behaviouristic characteristics like the attitudes, beliefs, ideas, interests and motivations. They also provide various opportunities for learning, recreation and leisure activities, necessary for social adjustment. Immitation, suggestion, sympathy, rivalry, negativism, quarreling, cooperation, praise and blame, approval or disapproval, recognition, identification are some of the important psycho-social variables in social interaction which affect the social development of the child. Periera and Thirtha (1972) conducted a study to identify factors influencing social adjustment in pre-school children. The investigation revealed that nuclear family organisation and maternal education contributed more to the adjustment of children than the joint family and parental education. Other variables such as sex, birth order and socio-economic position showed no significant difference.

Varma (1962) conducted a study on the nature of moral or ethical discrimination of the child and the role of certain variables as intelligence, age and sex in the development of moral judgement. Here tests were adopted to study the child's capacity to evaluate offences, solve and judge moral situations and also his reactions in social situations. The method used was simple and appealing to the child since it involved the selection of a correct or appropriate alternative from the multiple-choice given. Phatak (1963) later investigated the interaction or relationship among the variables weight, height, intelligence, creativity and social behaviour over a seven-month period in a sample of children studying in grades I-IV.

The N.C.E.R.T. undertook the nation-wide project on the development of norms to study the Indian child of different centres and establish a development schedule. In the study of the personal-social development, different aspects of behaviour such as eating, sleeping, elimination, dressing, personal hygiene, communication, play and developmental detachment were studied. In the second development norms project, the social development of the child was studied for the 5½ to 11½ years old sample and a social maturity scale was standardised on the lines of the Vineland social maturity scale. This scale (Thirtha, Gururaja etc. at 1974) was developed by the Bangalore Centre and on a standardisation sample of urban and rural children. The scale can be used to obtain the social maturity of children in the age-group of 3½ to 14 years and norms have been established for urban and rural samples. The scale record progressive maturation in the following eight dimension: self-direction, self-confidence, communication, leadership, friendship, cooperation, and ability to take stress.

During the first five years, the child's parents are clearly the primary influences on him and it has been established that the family influences the development of his personality. Saran (1970) found that the home environment of the pre-school child influenced his social adjustment *i.e.* self-confidence, self-assertion, friendliness etc. in face to face social situation particularly with equals and near equals.

Muralidharan (1969) found that children from larger sised families *i.e.,* three child family units, showed significantlyless of problem behaviour than the children from one or two child families. The sample consisted of subjects in the age group three to eight years and some of the behaviour problem studied were sleeping and eating difficulties, unsocial behaviour, aggressiveness and delinquent ruled behaviours. Kakkar's study (1970) explored the role of family conflict in the development of the child. Using a questionnaire he measured the extent of inter-parental conflict with regard to child-rearing problems and related this to the scholastic achievement. Muralidharan (1970) and Muralidharan and Topa (1970) found positive beneficial home influences on the child's development. In the latter study the 5-year old child's need for achievement was found to be dependent on the nature of independence training imparted by the mother.

In terms of time spent with the child, the mother has more opportunities that the father to influence her offspring's spychological growth and behaviour. In the dynamic nature of the mother child interactions, the mother's behaviour patterns have been found to be conditioned by a number of variables; education, age, employment, social class and a host of other factors. However, some general tendencies in maternal behaviour relating to children's response tendencies have been noted. Patel (1964) found differences in social behaviour and personality reared completely or partially by mothers, partially and reared by another person respectively. The data were collected from a sample of four years old suburban children in the upper middle class group. She obtained data on intelligence, social maturity, ascendance-submission and sociometric choices of the children and found that the mother-reared children in general, were more socially acceptable. Prasad's (1975) recent study in pre-shcool children of working mothers found sex differences in the behaviour examined. They compared the behaviour of pre-school children of employed mothers with non-school going children of non-employed mothers in specially created play situations. The authors conclude that pre-school education, did not seem to adversely affect the personality of the child. While examining the effects of mother's working status on child it was found that male children in working group were socially more participative than male children of non-working group and tended to have higher scroes on nervous habits. Warty and Mehta (1970) found that desirability of punishment was affected by the education of the mother. Faisunnisa and Parameswaran (1965 & 1968) findings seem to confirm the relationship between maternal behaviour and behaviour problems in children.

How does the child accept the nursery school situation? The social interactions in the nursery school may promote further growth or they may frustrate and blunt the child's social interests and skills. Pathak *et.al.* (1972) found (using observational schedules) that the adjustment of the child to nursery school was a series of shifts or changes in behaviour. In the early stages, though the child is independent and able to communicate freely with his teachers, he is still ego centric in his interactions with his peers. It is only later that they become friendly with the teachers and accept other children. Nijhawan and Brar (1966) studied the patterns of social behaviour in nursery school children. They found that certain behaviours as cooperation, competition, and ascendence increased progressively from 3 years old to 5 years old, whereas for behaviours like aggression, negativism and sympathy, the increase was not so clear cut as was the decrease from the 3 years old to the 4 years old and increase later in the 5 years old. Nijhawan and Promilanath (1967) reported the relationships of the above findings with the teacher's ratings on these behviours. Further, it is interesting that differences were

observed in the social behaviour of children whose parents differed with regard to income and occupation. Nijhawan (1968) reports that ascendance behaviour had highest incidence in the high income groups whereas cooperation, and sympathy better in the low income group (below Rs. 400) whereas negativism seems to be maximum in the Middle Class group (Rs. 400-800). Similarly, the results were analysed in form of parents occupation. For children belonging to all occupational groups negativism was found to be highest in the business group, sympathy in the doctors group, ascendance in the government service group and competition in the Government service and business group.

Some of the following factors have important roles in social development of the children:

1. *The Physiological factors:* Growth and social functioning are influenced by physiological factors. The child who is slightly deficient in physical trait may oxperience, in relation to his own aspirations, a slight handicap in social relations in his age group. Certain factors of the nervous system and the endocrine glands play their part in determining the child's patterns of action and outlook on life. Bose and Biswas (1972) conducted a study on the social world of some physically handicapped children developed marked differences between "ideal self" and "self concept" under the influence of uncongenial interactions with different personalities present in their social lives. As a victim of diseases, they were a social but not anti-social.
2. *The family:* Among the various social groups, the family occupies the first and the most significant influence for the social development of the child. It does not only provide the hereditary transmission of basic potontial for his development, but also provide environmental conditions, personal relationship and cultural patterns.

   The home derives its force in the life of the child from one salient psychological fact-namely, the determinative weight of early associations and conditionings in later conduct. Research investigators have noted the potency of early conditioning and that long before the child reaches school age his native tendencies are heavily overlaid with a superstructure of conditioned reactions. Chauhan (1963) found that truants lacked love of the mother in early years of development.

   Parent child relations have various dimension of interaction and as such, remain basic for socialisation of the child. Child's acquisition from the parents in terms of "acceptance—rejection, 'dominance-submission', 'lovelate', 'democracy-authoritarianism, 'trust-distrust', `reward-punishment', tolerance etc. determine his adjustment and potentiality of behaviour not only in the family but in other social spheres of interaction as well. Parent child relationship determine behavioural adjustment of the child in family as well in other areas. Jai Prakash and Govind Tiwari (1974) conducted a study on parent-child relationship and drop-out behaviour of 100 drop out and 100 non-dropout students taken from 201 primary schools of Agra city. Author applied 5 point scale and an interview schedule. They found that the dropout parents, in their treatment toward children give significantly greater weight to punishment, cooperation and autocracy. The non-dropout parents lay significantly greater emphasis upon possession, trust, help, love and dominance.
3. *Religion:* Like home, religion has long been regarded as a primary social institution. Religion

plays a dominant part in the determinant of the direction of social functioning of the child. Religion is also of dominant influence in the determination of social attitudes.

4. *Government:* Government is tremendously potent factor in the determination of the conduct lines in the individual. Brij Mohan (1969) has advocated for the reorientation of social policy for the welfare of the children. Government frames social policy for removing poverty and appalling backwardness of the Indian masses that is just conducive to the individual development.

5. *Language:* Language, in many ways, is the most fundamental of institutions. The basis of the fundamental importance of langauge is social functioning. Suppose for example, that language and the communicative arts were to be blotted out on the instant, social functioning, both of individuals and groups, would be temporarily at a standstill and impaired permanently.

6. *Education:* As a social institution that determines the growth of individual, education is second to none. It is the agency that society has set up to allow the child a period of experimental social functioning and growth. The school, like the family, is a potent institution in the development of the social behaviour of the child. It provides a complex of social situations or a miniature social world in which children live and perform their function in interaction and under the guidance of the teachers.

7. *Peer group:* The child is introduced to the social world outside his family, mainly for play purposes and for seeking friends of his choice in the immediate neighbourhood. The peer group satisfy various needs of the children like acceptance, achievement, affection, approval belongingness, fame and recognition, expression of thought and opinion etc. They play an imprtant role in the social development of the child because of their emphasis on education in the rights of others, in acceptance of common group rules and discipline, in mutual understanding and cooperation, in play and activities and in the consciousness of a sense of justice.

8. *Physical environment:* In these days of considerable urbanisation, much attention has been given to the effects of certain special types of environments, such as population, congestion, upon social behaviour. It has been established that there is a lower incidence of juvenile delinquency in the areas contiguous to play fields than other parts of congested areas.

9. *Class Status:* The role of class status in adjustment is illustrated in the results of an investigation by Heintz (1949). Kuhlen and Lee (1943) pointed out that an acceptable social status is necessary for a satisfactory social development. Different patterns of social behaviour are manifested by children from different social strata and socialisation in any given instance cannot be understood without taking this fact into account. In India, the constitution has provided special privileges to the scheduled caste and scheduled Tribes. Still they have not been fully assimilated into the main stream of Hindu society. Untouchability has been declared illegal. Still there is a social distance between so-called upper castes and lower castes. Prejudices are prevalent in Indian society. All these factors play an important in the socialisation process of Indian child.

The available evidences strongly support the view that though the genetic endowments provide the essential basis and set limits for both physical and psychological development, the potentialities of a child for functional activities depend upon the physical and socio-cultural ecology. The socio-cultural environment charged by a given set of relatively stable but subtle agents of forces in the form of rites and rituals, mythology and beliefs, egoideals, traditions and community practices, permeates into the fabric of plastic personality of the child through the parents, who, thus acquire the status of trustees of social norms and transmitters of the same to their off-springs.

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23
Socialisation

Socialisation is a practical problem of rearing children so that they will become adequate adult members of the society to which they belong. Research studies in Psychology and Anthropology in the last few decades have shown the relationship between parental practices in the upbringing of children and the behaviour patterns of adults. There are two ways in which unique types of thinking, feeling and modes of acting of a particular group of people get transmitted to the next generation: (*a*) directly and formally as in educational programmes, and (*b*) informally through interactions between parents and their children which occur in the course of child-rearing. These interactions include the parents' expression of attitudes, values, interests and beliefs as well as their caretaking and training behaviour. Some of this informal learning arises through interactions with relatives, neighbours, peer groups and teachers.

Parent-child Interactions

Not all parent-child interactions arise from the deliberate intention on the part of the parents to train the children. Some of these interactions arise out of caretaking—feeding, cleaning and protecting. Some are expressions of love or annoyance—reactions that have no significant purpose for the child's future; but they have their influence on the child's growth.

Parents influence the children by their actions, what they do on a given occasion. Anything a parent does to a child or with a child has as its aim to control the child, to change or to maintain a particular form of behaviour; and this influences the child's actions. There is also the process of learning, where the parents deliberately try to change the child's potentialities for acting in the future. Here the parent intends to train the child, to change his way of acting by making him learn certain ways and by giving up certain other ways of behaving. However, it is difficult to draw the distinction between "action" and "learning." As Seers, Maccoby and Levin (1957) write, "Actually every interaction between two people has an effect both on their present actions and on their potentialities for future actions. An affectionate hug or a reprimand not only influences what the child is doing at the moment, but adds a small change into his expectations of what will happen in future similar on occasions. This expectancy, in turn, increases or decreases the probability that he will act the same way in the future."

The process of influencing the child is greatly facilitated when the child develops his language

skills. The mother can make it clear to the child whether her intention is to control the child's behaviour for the moment or to modify his behaviour permanently. The words "now" and "next time" become very useful to make the child understand the intentions of the mother. The words "good" and "bad" become very powerful to modify the behaviour of the child both before he learns to use these words himself and after he has acquired their use. They can become much more effective than either emotional expressions or actions like beating *etc.*, to modify the child's behaviour and to enable him to learn the appropriate ways of behaving in the given situation.

The mother has much to teach the child or to help him to learn. He has to learn the motor activities that will enable him to manipulate the objects in his environment. He has to learn eating habits, drinking habits, toileting, independence, responsibility, speaking, understanding speech and so on. He must learn what are desirable things to have and what are the undesirable things he has to avoid or give up. The child must develop proper control of his aggressive impulses and learn to put up with frustrations and failures. He must learn what is "good" and what is "bad," what is approved by his parents and what is not approved by them. He has to learn the names and functions of things and how to manipulate them. He must learn the proper ways of behaving towards his parents, brothers or sisters and other members of the family, the relatives who come to the house and the visitors who drop in.

Psychological Birth

Margaret Mahler (1975), has shown how the *psychological birth* of the child unfolds itself slowly through interpersonal and intrapsyclic processes. It involves a sense of separation from the mother and the achievement of a sense of individuation. Both these are achieved from about the fourth month to the third year. This separation-individuation phase of development is crucial in regard to ego development and in regard to the development of object relations. Thus this is a kind of second birth.

In the first three months, the infant spends his day in half-sleeping, half-walking state. It is more a physiological than a psychological state. It is followed by a dim awareness that need-satisfaction comes from outside. He gradually becomes aware of his mother and attachment to her develops.

Attachment

The concept of attachment is relatively new in theorising about child development. In 1958 Bowlby introduced the term to describe the tie between mother and infant.

Bowlby suggested that there are five innate and un-learned responses which bind the infant to his mother, namely, sucking, clinging, following the mother with his eyes, crying and smiling. Sucking, clinging and eye—following are initiated by the infant with only marginal response from the mother. But crying and smiling become effective by the active response from the mother. In the course of development, these five responses become integrated and constitute the basis for attachment behaviour and are eventually modified through learning.

Ainsworth (1973) says "An attachment is an affectional tie that one person forms to another specific person, binding them together in space and enduring over time." Animal babies, as well as human babies, seek the proximity of the mother. Each species has characteristic attachment behaviour patterns. In the birds it is formed a few hours after birth. In the animals within a day or two. Clinging seems to be the most important attachment behaviour of the monkeys. Bowlby (1969) asserts that the infant is

ready to make his first attachment to a specific person in the second quarter of the first year. After the first six months, it is more difficult. The difficulties are very great after the first year. This is why the period from three months to six months is a very critical period in child's life. It is the period of primary socialisation when the infant makes his first social attachment, the sense of trust as Erikson calls it.

From birth onward, infants tend to look at faces in preference to other stimuli. During the first six months, their most vigorous smiles and cooing are in response to faces. The mother facilitates this by putting the baby in a face-to-face position, looks into his eyes and caresses his limbs and body. His crying is a spontaneous expression of his distress and the mother spontaneously responds by trying to relieve his distress.

Repeated contact with the particular person is necessary for the infant to become attached to her or him. Smiling and vocalising become selective. The infant 'talks' more to the persons with whom he is building attachments. Another sign of attachment is the stopping of crying. When he is crying, he will stop it, if his mother or another person to whom he is attached, takes him up. Not so when others, take him up. His *looking* also shows his attachment. He looks at his mother with eagerness and joy. It is obvious that attachment is built not on the basis of family relationship but on the basis of affection shown by a person to him.

Exploration and Attachment

It is a familiar fact that puppies crawl away from their mother, explore their environment as soon as they are able to do so and return to their mothers. Thus attachment behaviour and exploratory behaviour are linked so that the young one is safe and yet ready to explore the environment and build up his competence.

Human babies are more helpless. They spend about six to seven months with the mother or caretaker. As soon as they can creep, they explore. Ainsworth and Bell (1970) studied the behaviour of one year old babies in this regard. It was found that the largest amount of exploratory behaviour, as seen in locomotion, manipulation and looking, occurred when the baby was alone with the mother. When the stranger entered the room, exploration decreased, until the mother came back to the room. This and other studies show that attachment behaviour and exploratory behaviour are in dynamic balance in infants and that both kinds of behaviour are related to the mother's presence.

Modification of Primary Drives

Socialisation of children is not an easy task. The child is moved by the primary drives like hunger, thirst, waste elimination, need for activity, tensions, fatigue and so on. He has his emotions of rage and fear. As a result many of the actions which the mother wants to introduce come into conflict with the desires of the child. The mother learns that she can control the child's activities and teach him new ways of reacting by manipulating his wants. The child can be induced to do certain things and behave in certain ways if they are made part of some pleasurable sequence of activities. By making bathing a pleasure, by allowing the child to play which the soap, bathing can be made into a pleasant act inducing the active participation of the child. The child wants to do things in the way the "grown-ups" do. The mother can introduce new actions into the motivational system of the child so that the inculcation of new actions becomes a pleasure both to the mother and to the child.

It is difficult for the mother to be calm and rational when the child indulges in temper tantrums, or has spells of stubbornness. The mothers themselves become highly emotional. As a result of this, the mothers are unable to teach the children and give them proper training. What is worse, such emotional interactions affect the development of the child; they affect his potentialities for future actions, besides affecting their present behaviour. Such emotional interactions between the mother and the child do not promote the socialisation of the child; he cannot develop socially appropriate behaviour nor can he develop suitable and proper kinds of interactions with others.

Child-rearing Practices in Rural and Urban Areas

Reference may be made to differences in child-rearing practices between the rural and urban groups and how they affect the development of behaviour. The rural group is a primary group, characterised by intimate, face-to-face contact, by the mutual social support of the individuals who belong to the village and by the ability of the village group to prescribe, proscribe or order a cosiderable proportion of the behaviour of its individual members. All the individuals in the village know one another and information regarding quarrels, etc., spreads quickly to the whole group. There is hardly any conflict in the value systems of the various sub-groups in the village. The dominant group dictates and the subordinate groups are submissive. They do not question the customs and traditions.

A city, on the other hand, is largely a secondary-group society. There are a variety of sub-groups in the city and they are not characterised by intimate face-to-face contacts. There is multiple group membership. A man works in one group, a factory or office. He lives in another group. He may be a member of a third group which is a recreation club or musical society, etc. He goes to picture houses and visits restaurants in different parts of the city. These different groups of which he is a member may differ in their values and goals. There is no universal consensus regarding what is "good" behaviour or "bad" behaviour. These value become "relative" in the city while in a rural group they are practically "absolute." However, it is a fact that even in the city, the family, the caste-group, the peer group are primary groups. But they do not hold as pervasive a sway over individual behaviour in the city as they do in the village.

It is obvious that the child-rearing practices in these two types of environment are quite different. There is considerable agreement regarding what is acceptable way of behaving within the village; so the people tend to be conservative in their outlook. But in the urban society the culture is dynamic and rapidly changing. Traditional behaviours are of little use in preparing the child for adulthood in the city, since there is considerable change in the social norms and ways. The parents cannot insists on their children conforming to certain traditional ways of behaviour, clothing etc., since the peer groups may be having other norms. The peer group and the school have a greater influence on the city child and adolescent that the home and family group. So the city child is more autonomous in his behaviour than the rural child. The urban parents has to be more permissive than the rural parent. It is not possible for the urban parent to keep a constant watch and check over the child since he is a member of different groups engaging themselves in diverse activities. As a result, the child of the city knows many sets of conflicting values; probably he may not accept any of them whole-heartedly; ultimately he may have to select from among them what he finds best for himself.

With the decrease in the death rate among children the affection to the children increases. When

the death rate of children is high the parents do not want to have deep affection to the children. Deep love leads to deep sorrow when the child dies. Now that the mortality rate among children is low, the parents are satisfied with two or three children and give them all the affection and care.

Influence of Attitudes of Parents

Another important factor that affects child development is the attitude of parents to the children. Even in 1979 the rate of wastage in primary education in India is very high. Only 27 per cent of the children enrolled in class I reach class V. The remaining 73 per cent of the children are withdrawn by the parents because they want them to work at home or in the field and look after the cattle. Or they may even send them to work in a prosperous home as a servant. Thus the children are looked upon as economic assets. Instead of giving wages to others, they make their children work for them and thus deprive the child of primary education. The 1971 census revealed that over 70 per cent of the adults in India are illiterate in the sense that they cannot read or write simple matters. With some prosperity the parents love their children, send them to the schools so that they grow up to be efficient persons. On the other hand, poor people continue to be poor for generations because they withdraw their children from the primary school after one of two years of schooling: as a result the children grow up to be illiterate and unskilled adults; they can only work as casual labourers in construction work or as domestic servants. Thus poor people look upon their children as an economic asset and withdraw them from the primary school: the net result is that the children continue to be poor. If, on the other hand, the parents do not look upon the children as economic assets, they will educate them and give them training in activities which will enable them to develop themselves, equip themselves and grow up to the stature they have potentialities for. They do not enter the labour market as children. They equip themselves for better work.

Parental Treatment

Another significant fact about modern life is that children are treated as equals by the parents. When children are treated as "little ones," they continue to be immature. But when they are treated as equals, in adult-like fashion, they mature earlier. They get a sense of responsibility. Their 'self-images' become different. They look upon themselves as "grown-ups" and behave like "grown-ups". When their questions are answered by the parents in a serious manner they can develop self-respect. However, this is not the way in which children are treated in the traditional, agricultural society. They are looked upon as little children who are not be taken seriously. Such an outlook on the part of the parents will not help the children to develop self-respect.

Reference may now be made to studies regarding social class and parental values. Kohn (1959) found that parents of all classes shared certain values; they said that their children should be honest, happy, considerate, obedient and dependable. However, he also found differences in parental values depending upon the social class to which the parents belonged. Middle-class parents emphasised honesty, self-control, consideration and curiosity. The working-class parents emphasised qualities that assure respectability, such as obedience, neatness, and cleanliness. Another difference that has been found is that while the working-class mothers emphasised specific behavioural conformities, middle-class mothers focussed rather on the child's growth, development of affection and satisfaction. Middle class parents have been found to have more acceptant, egalitarian relationships with their children than the parents

of the working-class. Social class differences have also been found in research on achievement, independence and conformity. Rosen (1956) found that the middle class parents emphasise independence in early childhood, expect good school performance and have a greater belief in the possibility of success than the parents from the working-class. There is a greater degree of internalisation of achievement striving in the middle-class high school students than in the high school students from the working-class. Prayag Mehta (1969) conducted a survey in the higher secondary schools of Delhi to determine the level of achievement motive in high school boys and to study the relationship of the achievement motive with school performance. The boys of fathers who were skilled workers and unskilled workers showed a higher level of need for achievement than that shown by the boys whose fathers were in the clerical and small shopkeepers' group. The boys from the professional group showed the lowest level of need achievement. This finding augurs well for the progress of the society, since lower class parents are eager that their children should come up.

Guilt and Shame as Techniques to Control Behaviour

While some cultures train the child to have a well-developed conscience so that he has guilt-feelings when he does something wrong, some other cultures make the child feel ashamed when he does something wrong. Guilt-feelings make individuals self-regulating individuals who punish themselves when they do something wrong whether they are caught in the act of doing wrong or not. But feelings of shame arise only when one is caught in the act of doing wrong; feelings of shame do not arise if one is not caught. Both guilt and shame are techniques of controlling behaviour. Shame is quite effective in a primary-group society like the rural society, since all acts in the rural society are public; there is practically nothing that is private. But this is not adequate in an urban industrial culture, since anonymity is possible. The group ties are not strong in urban society, so shame is not an adequate technique for controlling behaviour. Here guilt-feeling has the greater influence. However, excessive guild-feelings lead to neurotic symptoms.

Guilt-oriented parents make the child feel bad when he does something that is prohibited. He will be asked to say that he is sorry and promise that he will never repeat the act. The shame-oriented parent would follow a different procedure. When the child does some prohibited act he will be told that other people will ridicule him, that he will not be able to hold up his head; scolding and physical punishment will be resorted to in order to correct him.

According to Mowrer (1967), the psychopaths, people unconcerned with and who are uninfluenced by the disapproval of others are the least socialised persons, the neurotics are somewhat socialised persons and the normal people are the most adequately socialised persons.

Child-rearing Practices

An attempt may now be made to review briefly some of studies that have been carried out to study the various child-rearing practices, particularly because of the emphasis laid on them by the great psychoanalyst Sigmund Freud (1856-1939). He said that these practices have considerable influence on the development of the personality of the child. A description of Freud's theory of stages of growth in sexual behaviour is given in a section below.

Feeding. Observation of an infant's behaviour shows that much of its activity centers around the region of the mouth. Sucking, mouthing and crying constitute the most important aspects of infantile

behaviour. Freud maintained that sucking was not only the means of sustenance for the infant but also a source of pleasure.

The earliest pressures of socialisation are applied to the infant in the area of feeding. Regularity in satisfying the hunger drive is looked upon as a very important step in socialising the infant.

With respect to the method of acquiring sustenance there rare changes from sucking to eating and chewing. Also the nature of the diet shifts from liquid to solid foods. In all these aspects of feeding, the mother intervenes to greater or lesser degree.

The mother who breast feeds her infant can establish a warm affectional relationship with the infant. But when the mother is unable to secrete the necessary amount of milk, she has to resort to bottle feeding. Also the working mother prefers bottle feeding. Studies have been made to find out if there is any difference between the mothers who breast-feed and those who bottle-feed their infants. Another aspect of the problem is whether there is any effect on the child's personality. The results show that the practices of breast-feeding and bottle-feeding are not based on any significant differences in the mother's personality nor do they affect significantly the development of the personality of the child. Sears *et.al.* (1957) in their study of six aspects of child behaviour such as aggressiveness, dependency and development of conscience, did not find any significant relation between the mode of feeling and these aspects of the personality of children. Sewell and Mussen (1952) made an extensive study of some phases of infantile feeding and found no relationship between the type of feeding in infancy and various oral symptoms like thumb sucking, nail biting and stuttering among five and six-years old. It appears as if the manner in which the infant obtains his milk, whether breast or bottle, has no psychological consequences. The mother who feeds her infant with the bottle holds it close to her with the same warmth and affection as the mother who feeds it with her breast.

Another significant aspect of the situation is the duration of breast feeding. Clinical studies have found no relation between short duration of breast feeding and maternal rejection. Nor has any relation been established between length of breast feeding and personality ratings of nursery school children.

Thumb sucking. According to psychoanalytic theory an infant takes to thumb sucking if it lacks sufficient oral gratification through sucking to obtain food. On the other hand, according to learning theory the greater the reinforcement received by the infant from sucking, the stronger his sucking drive. Thus the two theories put forth contradictory explanations for thumb-sucking. While the psychoanalytic theory holds that lack of oral gratification leads to non-nutritional thumb-sucking, the learning theory holds that it is oral gratification itself that leads to it. However, the research findings have not been able to confirm either hypothesis. It appears as if there are other reasons than oral gratification or its absence to account for prolonged thumb sucking. Clinically thumb sucking is taken as a sign of maladjustment in the child. But its seriousness depends on the age of the child. While in a three or four years old child such behaviour may not be indicative of maladjustment, if it persists in an elementary school child of six to eight years it may be an indication of personality disturbance requiring investigation by a clinical psychologist. Clearly such behaviour in later childhood years is a regression in the broad sense of the term; the child is reverting to an earlier form of behaviour which is useless now. It may indicate the presence of strong feelings of insecurity. Thus our present knowledge

shows that the parents need not have any anxiety regarding the thumb sucking behaviour in the pre-school child, that is, when the child is only three or four years old.

Weaning. Weaning practices refer to the manner in which the infant is weaned from the mother's breast of the bottle. According to the psychoanalysts weaning causes great frustration and sudden weaning has a traumatic effect. So they recommend gradual weaning. Sears, Maccoby and Levin (1957) studied the age at which weaning occurred and the severity of the process in relation to emotional upset in the child during the procedure. It was found that twice as many youngsters were rated as having shown some upset when weaning was initiated after eleven months of age as when it was started before five months of age; but the children weaned in the intervening period, that is, between five months and eleven months of age, showed the fewest emotional reactions. It was also found that there were fewer emotional upsets when the pressure exerted was less severe. Thus, the results did not support the psychoanalytical theory that the longer the infant remained breast or bottle fed, the more emotionally healthful he would be. The Sewell and Mussen (1952) study reported no connection between personality adjustment ratings of its five and six years old and the age at which they were weaned or the character of the weaning process.

Thus, according to the present knowledge: (*a*) there are no differences between the infants who are breast fed or bottle fed, (*b*) there are no permanent effects of weaning activities on the child, and (*c*) child-rearing techniques may have some immediate or short-range influence on child behaviour, but no long-term effects.

Toilet-training. Toilet training is a very important aspect of child rearing. There are differences in the several cultures regarding the time, technique etc., particularly between the rural and urban people. Because the urban people are actually conscious of dirt, they become more strict. Mothers show a great concern over the bladder and bowel control of the child.

Freud emphasised the crucial importance of toilet training to the development of child's personality. However, research studies offer little corroborating evidence regarding the relationship between toilet training and personality development. Inconclusive relations were obtained between ratings of severity of toilet training and ratings of personality. However, clinical reports show the harmful consequences of severe toilet training. Case histories of children referred to child-guidance clinic show that in nearly half of the children bladder and bowel training had started prematurely; further, case histories show that coercive toilet training and behaviours like negativisim, aggressiveness, defiance, timidity etc., are closely related. But the problem is to determine whether there is any casual relationship between the two. It seems probable that the mother resorts to such coercive practices because of her own personality problems.

Feeding behaviours as well as evacuative behaviours are based on built-in reflexes. The basic mechanisms operate efficiently at birth. The aim of the training programme is only to regulate these activities according to time and place.

When should toilet training begin? As in other behaviours, this behaviour also depends on the neuro-muscular maturation. Sears *et.al.* (1957) found that in 87 per cent of the cases studied, the mothers started bowel training by the time the child, was 20 months old. Eleven months represented the average age of starting the training and 18 months the average age of the completion of training. In 80 per cent

of the cases the training had been completed by the time the children were 24 months old. The data also showed the quicker results were obtained when the training started later (See Chs. XV and XVI).

Aggressive behaviour. The western culture in the industrial society (in the last 150 years) has placed very great emphasis on the ambition, hard-driving, aggressive behaviour in the youth and the adult since it leads to success in the competitive, free-enterprise system. On the other hand, the Indian society admires the contemplative, introverted saint.

But "aggression" is defined as violent behaviour intended to harm or injure other persons; it ignores the rights and wishes of other persons; it is the expression of anger, hostility and quarrelsomeness.

Thus a clear distinction must be made between "aggression" in the sense of violent behaviour the goal of which is to harm others and "aggressiveness" in the sense of a drive at the basis of achievement in the economic sphere. The latter may also be termed "instrumental aggression the goal of which is to achieve something, to get something done, to reach some desired outcome."

The infant becomes angry and lashes out when its movements are restricted, or when it is frustrated. It cries, screams and later attacks. As the child grows older overt aggression decreases; inner controls are learned; more socially acceptable ways of solving conflicts and frustrations are learnt and rules governing "civilised" behaviour are incorporated and internalised.

Different theories have been advanced to explain aggression in children. Three theories may be briefly reviewed.

(*a*) *Frustration-aggression* hypothesis was developed by Dollard and his co-workers in 1939. According to this view aggressive behaviour is a typical response to frustration. Nearly 2500 years back this hypothesis was put forth in the Bhagavad Gita. "From attachment springs desire and from (the frustration of) desire comes anger" II. 62. Observation as well as experimental studies support the hypothesis. Several parent-child research studies have shown the relation between aggressive behaviour in children and punishment for aggression. When aggressive behaviour of the child is punished by the parents, the child feels frustrated and his aggressive behaviour increases. Another study found that aggressive boys in the school tend to come from homes where the fathers severely punished aggressive behaviour at home. In their study of adolescent aggression, Bandura and Walters (1959) attributed the development of aggressive behaviour to the disruption of the child's dependency relation with their parents.

However, it must be remembered that frustration does not inevitably lead to aggression. It may lead to other kinds of reaction like withdrawal etc., depending on the personality of the child and the situation.

(*b*) *parent as model*—Bandura and his co-workers (1961) have put forth the hypothesis that aggression in children may arise because they look upon the parent as a model. An aggressive parent serves as a model and promotes aggressive behaviour in the children. Winder and Rau (1962) found that the parents of aggressive boys scored higher in aggressiveness than parents of non-aggressive boys.

(*c*) *Permissiveness of aggression*—Yet another hypothesis to explain aggressive behaviour in children rests on the fact that aggression is more likely to occur when it is permitted by the parents.

Thus violent behaviour in the child may arise because of internal conditions like frustration or external conditions like the behaviour of the parents. In any case it is clear that training plays a very important part in expressing as well as in the control of aggression.

Dependence—Independence

The human infant is dependent on his mother. Because the mother satisfies his basic biological needs the infant develops emotional dependence on her. How then does independent behaviour develop? With maturation and learning the young child grows increasingly capable of functioning independently. Gradually independent behaviour in itself becomes rewarding to the child. It gives him satisfaction when he explores and manipulates the environment, when he is able to interact successfully with his peers. As a result there is an increase in independent behaviour as the child grows older. One of the aims of the nursery school is to provide opportunities for the child of three to six years of age to be less dependent on adults and to become more active and self-dependent.

Thus dependence-independence is a cultural phenomenon. It reflects the importance attached by society to the development of independent behaviour. In the villages the poor people, particularly the landless labourers, are made by circumstances as well as by training to depend on the wealthy landlords. Similarly the various occupational caste-groups like the barbers, the washermen, the blacksmiths and others depend on the landlord who gives them grains at the time of the harvest for the service they render. In fact if these groups show independence they are punished. On the other hand, in a big city, each person has to depend on his own resources to build himself up.

Some mothers want their children to be dependent on them. They will do everything even for a ten-year old child. They will help them to bathe, to put their clothes on, etc. This makes the child to continue being dependent on the mother. When the mother is not there, they seek out others like a sister or cousin on whom they want to depend. They feel frightened and helpless if they have to stand on their own legs. But some other mothers help even the child of three or four to be independent. They encourage them to do their tasks by themselves. They encourage them to make their own friends.

What are the characteristics of dependent behaviour? The signs of dependence are seeking help, seeking proximity, seeking attention and seeking recognition. On the other hand, the behaviour denoting independence consist in taking initiative, trying to overcome obstacles in the environment, being eager to compete, getting satisfaction from work and trying to do the routine tasks by oneself. The four-years old who does not feed himself, the five-year old who does not play with his peers unattended by the mother, the six-year old who does not dress himself alone, exhibit dependency. Thus dependency is also a function of age. As the child grows older he should become more independent.

Studies show that attention seeking (in both positive and negative forms), seeking closeness of others for comfort and assurance, protest over separation from adult and peers, seeking help to accomplish goals and seeking approval and recognition are characteristic features of dependent behaviour (Maccoby and Masters, 1970).

Three interpretations of dependence behaviour may be identified. The most common meaning of dependent behaviour is *emotional dependence*, that is, seeking affection and protection among children and adolescents. While such behaviour may irritate some adults, some others may like it and even encourage it. It is true that most children desire adult praise, approval and affection; but the persistence

of such behaviour in adult life is a mask of immaturity. Generally dependence is equated with weakness. Studies have also shown that children very high in emotional dependence have usually been found to be less popular than the child who is relatively low in emotional dependence. Another interpretation of the term is *help seeking*; for example, when children of four or five years or older ask help in dressing, eating, etc. Such help seeking is really attention seeking; consequently it is really emotional dependence; instead of becoming competent they continue to be dependent. The third interpretation is *passivity*; the child is not active; he waits to be told what to do.

Development of the child is from dependence to independence. This transition is influenced by several factors including physical maturation, increased language competence and advances in problem-solving skills. There is also the transition from dependence on adults to dependence on peers as in preadolescence and adolescence. Thirdly, it is influenced by such factors as increased self-control, definition of acceptable personal values, attainment of decision-making ability. Since independence involves a critical attitude towards authority and resentment towards being dictated to, it is often looked upon as defiance and rebelliousness. Such as attitude towards the adolescent is not appropriate since he is showing these signs as a mark of his development; hence the need for understanding. The desirable behaviour must be logically explained to the adolescent instead of being authoritatively imposed on him.

Studies of child-rearing practices show that parental rejection and inconsistency in dispersing rewards and punishments for dependence behaviour are associated with high dependent behaviour in children. In contrast, higher levels of independence behaviour have been observed where they have opportunities for exercise of self-reliance and where there are parental demands for autonomous behaviour (Hartup, 1963).

Why does dependent behaviour persist? An early study by Heathers (1953) concluded that dependent behaviour resulted from maternal overconcern; the mother actually encouraged dependency behaviour. Others (Gavalas and Griggs, 1966) report that dependency persists when the parents reward dependent behaviour and fail to reward competent, achievement-oriented behaviour in the child. Another view is that when the child is frustrated by lack of parental warmth, nurture and affection, he cannot proceed to greater emotional independence. Some studies report that there is a positive correlation between the amount of dependent behaviour in nursery-school children and the severity of their weaning in infancy; but other studies do not support this view.

Probably there is a curvilinear relationship between how parents meet or frustrate a child's early dependency needs and the persistence of such needs in the child. If the parent strongly rewards dependency behaviour and prevents or discourages independence, dependency persists. Similarly, frustration of the infant's needs for dependence might intensify the desire for dependency in the child. McCord (1962) found that parental conflict and rejection of the child were prominent in the family backgrounds of extremely dependent boys; low parental esteem for one another and for the child prevailed in such homes. These findings support the view that dependent behaviour is a manifestation of feelings of insecurity in parent-child relationship.

McCandless and others (1961) report that there is a negative relation between dependence on adults and popularity among peers. The children depending on adults were found to participate the

least with peers. Thus dependence on adults appears to hinder a child's interaction with his peers while independence seems to promote good peer relationship. They also found that during adolescence independence and popularity go together.

Independence is related to need for achievement. It appears that independence is a sign of security and it enables the child to function autonomously and promotes effort toward personal accomplishment and attainment of goals.

Need for Achievement

McClelland (1961) and his co-workers postulate that achievement motivation is determined by socialisation practices which emphasise early training in independence. A number of empirical studies suggest a close inverse relation between achievement and dependence. It has been found that boys with high scores on need for achievement tests were more independent in their problem-solving efforts in school, ask for less aid from their parents and show greater self-reliance in general.

However, dependent behaviour and independent behaviour may not necessarily be the two opposite poles on a single axis. Independence has two criteria: (*a*) seeking nurturance from others on few occasions and (*b*) showing initiative and achievement striving. Thus achievement motivation is clearly something more than more independence. There is the positive characteristic of taking initiative when one is confronted by a new situation.

Winterbottom (1953) studied the achievement-related ideas in the stories told by her subjects who were boys aged eight to ten. She then prepared a questionnaire to find out whether any socialisation processes were associated with the scores in need for achievement. She interviewed the mothers of the boys using these questionnaires. She found that mothers of high-achievement children demanded independent behaviour in them at an earlier age than do the mothers of low-achievement children. She also found that there were rewards for the fulfilment of these demands for independent accomplishment. High-achievement children had been more frequently and intensely rewarded for acceptance of restrictions than the low-achievement children. Thus the results of this study give considerable support to the independence-training-and-achievement hypothesis. They show the importance of the early childhood years in determining achievement-orientation. However, evidence from other studies indicates that it is the direct training for achievement, rather than general independence training, that results in high achievement motivation. Rosen and D'Andrade (1959) explicitly advanced the hypothesis that independence or self-reliance training, when not associated with direct achievement training, is not a sufficient cause of high achievement motivation. After determining the high and low scorers, they observed and measure the parent's interactions with their children when they were participating in several experimental tasks. They found that the parents of high achievement boys had higher aspirations and expectations and set higher standards for their sons' performance than the parents of low-achievement boys. They found that both the fathers as well as the mothers of those with high-achievement scores had high aspirations for their sons and their concern over their success was greater than those of the fathers and mothers of the low-scorers.

In passing, it may be recalled that the children of beggars are quite independent in their behaviour, but do not show any signs of need for achievement.

These and other studies show that the development of persistent striving for achievement is

influenced by social approval of this behaviour and disapproval of its absence. A number of studies also indicate that the child who experiences failures adopts a life style oriented towards avoidance of failure rather than towards achievement of success. Studies also indicate that the children who experience a great deal of failure in their everyday lives develops a style of problem solving characterised by dependence on others; they tend to be "outer-directed" rather than "inner-directed"; that is they wait for their parents and their teachers to ask them to do their work rather than set the tasks for themselves. The studies also found that such children develop a low expectation of success and settle down for low degrees of accomplishment.

McClelland (1961) also found that achievement themes in fold-tales and in stories in class books are positively correlated with the entrepreneurial level of the societies. He found that in societies with low economic achievement the folk tales and children's books had few achievement themes. On the other hand, in the societies with high economic achievement, such themes predominated fold tales and children's books.

Thus, achievement motivation which is of great importance for economic development is influenced by (*a*) the training for achievement by the parents at home, (*b*) the frequency of achievement themes in folk tales and story books, and (*c*) by the general social approval of success and disapproval of failure in the citizens.

These studies show how important child-rearing practices are in building up a society in which many persons strive for achievement and economic development. The parents at home and the story writers play a significant part to develop a new class of citizens who strive for economic success.

This is one of the important tasks facing the parents, teachers and men of letters in India since the aim of the country is to promote economic growth so that there is elimination of poverty among the vast millions in the rural areas and in the slums in the urban areas in India.

Dependence, Independence and Achievement

Besides, helping the child to become responsive to adults and to peers, one of the aims of socialisation is to teach him to act independently and to reach his goals unaided. In other words, one of the aims of socialisation is to lead the child from dependence on others to independence and to become achievement-oriented.

As Bandura and Walters (1963) have shown, two varieties of dependency may be distinguished—task-oriented dependency and person-oriented dependency. In the task-oriented or instrumental dependency, a child seeks help from another person to reach a goal. On the other hand, the person-oriented or emotional dependence is one in which the child is seeking emotional satisfaction from the other person. As a result such emotional dependence may lead to problems of social adjustment later on. Normally such clinging and affection-seeking declines with age. From affection-seeking the child may move towards approval-seeking. There is also another aspect; as the child matures, emotional dependence on adults generally declines while dependence on peers tends to increase. But the aim of socialisation is to help the child to overcome this emotional dependence on adults as well as peers. Similarly, while task-oriented dependency is more development-oriented than person-oriented or emotional dependency, the aim of socialisation is to help the child to overcome this dependency also. The aim should be to make the child self-reliant in achieving his tasks and reaching his goals. From

this point of view achievement oriented behaviour is the opposite of dependency and is the aim of socialisation.

Studies have shown that dependency is the result of child-rearing practices. The high-dependent children are the products of homes in which parents encourage their children to rely on others rather than take care of themselves.

Just as independence is more than mere absence of dependence, the concept of achievement is also more than mere independent action. Achievement indicates not merely that the child is executing a task without assistance but is also trying to perform well to demonstrate his competence in the task. Thus, an emphasis on evaluation of performance against some standard of excellence is a characteristic feature of achievement behaviour. According to McClelland, need for achievement refers to a relatively stable acquired disposition to strive for success and to evaluate the success against a standard of excellence. Though independence characterises the achievement-oriented children, independence and achievement are not identical.

It has already been seen how achievement-oriented behaviour is also based on child-rearing practices. Studies have shown that the parents of boys with high achievement motivations typically set higher standards of excellence and generally anticipate better task performance than the parents of boys with low achievement motivations. Further, the fathers of boys with high achievement motivation tend to be less dominant and interfere less with their sons' decision making than the fathers of the boys with low achievement motivation. Thus, parental standard-setting behaviour is of great significance of promote achievement motivation in the children (Parke; 1969).

Sexual Behaviour

It has already been seen that considerable research has been made on child-rearing practices pertaining to feeding, weaning and toilet training. These are known as the "Freudian variables," because Freud emphasised the important of these three practices in the socialisation process as having the greatest long-range influence on adult personality. To understand why investigators have paid so much attention to these variables, it becomes necessary to briefly describe Freud's theory regarding the stages of growth in sexual behaviour.

His clinical experiences led Freud to believe that many adult problems could be traced to parental frustration of the young child's basic biological drives. He said that such frustrations repressed the infantile striving at the moment but they later reappeared in disguised forms or as sources of unresolved conflicts which caused stress and anxiety in the adult. This is how the study of child-rearing practice emerged from psychoanalytic theory of Freud. He emphasised the dangers of frustrating the infant's biological needs and advised the desirability of immediate gratification of these needs; but he also said that ultimately the child had to come to terms with the society and abandon the desire for immediate gratification.

According to Freud the basic energy is the 'libido' and it is there in the individual at birth. It is this energy which supplies the sexual drive; the goal of that drive is to gain pleasure. Therefore to Freud any pleasurable impulse is an expression of sexuality. Some areas of the body provide pleasurable feelings when stimulated, like the mouth, the lips, the anal region and the genital organs; he called these areas the "erogenous zones." He further said that in the course of psychosexual development,

each of these zones becomes in turn the centre of erotic pleasure and that frustrations result if these erotic impulses are denied gratification.

Thus, it is clear that sexuality in the infant is not the same as the sexuality in the adult; but the infant sexuality, according to Freud, is a forerunner of adult sexuality and is continous with it because it is the same libidinal energy that is released through the different erogenous zones throughout development. The various stages of psychosexual activity related to these erogenous zones may now be described briefly.

Oral stage. Simple observation of an infant shows that much of its activity centres in the region of the mouth; sucking, mouthing and crying are the important infantile behaviours. According to Freud sucking is not only the source of obtaining nutrition but is also a source of pleasure.

He said that two psychological phenomena emerge during any stage of development, namely, fixation and regression. When excessive frustration occurs in any of the psychosexual stages, "fixation" may develop; that is, the libidinal energy may remain locked in the erogenous zone from which the child obtains pleasure in that particular stage. Similarly, too much gratification may also lead to fixation, if it helps to relieve anxiety or tension as, for example, when the infant is given the breast or the bottle every time he shows signs of being upset. "Regression" refers to the tendency to return to an earlier mode of obtaining satisfaction when frustrated or when anxious. For example, a child of five or six may resort to thumb sucking behaviour when it faces new or strange situation or when it is tense or fatigued. Regressions, disguised in many forms, may occur in adult life also.

The oral stage starting at birth may continue for sometime in the second year of life. Then the libidinal energy shifts to the anal region. However, these various stages are not distinct, nor is the duration of each fixed; the significant thing is the sequence in which they occur.

Anal stage. During the second year of life, the child obtains pleasure from retention and elimination. These toilet activities receive much attention in the socialisation process. As a result conflict arises between the child's desire for satisfaction and the parental prohibitions. Parents teach the child to eliminate at the proper time and place. Thus, such parental demands impose limits on the impulse gratification of the child. When the child learns to regulate the elimination processes, he feels a sense of mastery over his environment. But if the parental demands are too severe, the child may develop a fixation at this point.

Phallic stage. Towards the end of the third year, the genital region displaces the anal region as the area of libidinal energy. Pleasure is now obtained from the stimulation of the genital organs. At this stage, both the boys and the girls become aware of their genitals; the beginnings of identification with the appropriate sex appear at this stage.

According to Freud the phallic stage culminates in the "Oedipal situation." There is the Greek tragedy in which Oedipus murders his father and marries his mother. Freud used this story to describe the way in which the boy at this age, namely, three to six years, experiences a great attachment to his mother, but finds that there is a strong social taboo against such attachment. This situation creates tensions and hostility between the father and the son. The son gives up or represses his desire for his mother because he is afraid of the strength and authority of the father. Because the mother rejects him on account of social taboos and because he is afraid of the authority of the father, the boy develops the

fear that he has lost the love of both his parents. Gradually identification with the father takes place; the child wants to be like his father and models his behaviour accordingly. Similar development takes place in the girl who has great affection for the father and has to give it up and identify herself with the mother and model her behaviour accordingly.

It is at this stage that the child develops, what Freud calls, the "superego." The child internalizes the 'dos' and 'don'ts' of the parents. According to Freud, the superego develops following the resolution of the Oedipal situation. The child, in other words, develops his "conscience."

Latency period. By about the age of six the child is able to resolve the Oedipus complex by overcoming the erotic impulses towards the parent of the opposite sex. The latency period now starts. The child develops interests outside the home; the erotic tendencies are, as it were, suspended. The boys and girls move freely with each other and play together.

Genital period. Just before adolescence, with the sharp rise in the production of harmones, the sexual impulses are reactivated. The boys become shy of girls and the girls shy of the boys. But there is also the interest in the members of the opposite sex. Finally, definite interest in some member of the opposite sex starts.

When there is satisfactory progress through all these stages there is culmination in adequate adult heterosexual adaptation. Husband-wife relations will be satisfactory if there has been no blocking at the earlier stages—if there is neither fixation nor regression. When there is harmony in husband-wife relation, the parents will be able to bring up their children satisfactorily. But if there is any defect in either the husband or the wife, the development of their children will be affected.

In conclusion, it may be stated that while the insights of Freud regarding the stages in psychosexual growth have been profound and have helped in clinical work with children as well as with adults, a survey of the research work based on hypotheses set up by Freud have not borne any clear results regarding the long range influence of frustration experienced by the child with respect to feeding, weaning, and toilet training.

Before concluding this chapter, a brief survey may be made regarding the problem of parental attitudes towards the child and their influence on the development of the child.

Parental Attitudes

What are parental attitudes toward the child and how do they affect the child-rearing practices?

From the studies conducted two dominant attitudes emerge: authoritarian attitudes and acceptance-rejection attitudes.

Authoritarian attitudes. An authoritarian person demands unquestioning obedience and subordination in the child. Adorno *et.al.* (1950) found in their study that an authoritarian person emphasises deference to his superiors and demands obedience from his subordinates. He has a strong concern for his status and wants his children to be "ladies" and "gentlemen." To this end he uses strict discipline; when the child resents, he is not allowed to express his resentment. As a result the child tends to find other outlets for his aggressive impulses. Frenkel-Brunswik (1953) found that the child who is severely treated during his childhood, himself develops authoritarian outlook. Such children display after the age of

ten, aggression, rigidity, cruelty, superstition and projection of their hostile feelings to the out-groups. They also tend to dichotomise sex roles. Thus authoritarian personality traits are related to early family experiences.

Studies have also shown that authoritarian parents tend to adopt highly conventional goals for their children and look at the child's behaviour in terms of their own needs rather than in terms of the needs of the child.

Thus, the authoritarian attitude generates a belief in the value and efficacy of an autocratic approach to child-rearing. Control of the child is looked upon as necessary and desirable. The parent is dominant and the child must be subordinate. Hardly any respect is shown for the child as an individual, for his rights and wishes and for his individuality. The parent wants to control his child in a direct and physical way without using explanation or reasoning. "Do as I ask you to do." "Don't ask questions." "Don't be impertinent." Thus, authoritarian parental attitudes lead to submissive behaviour in the child and to lack in security and independence. Radke (1946) found that the children from autocratic homes were rated by pre-school teachers as more likely to fight and quarrel with other children, as more inconsiderate to others and as more in sensitive to praise or blame than those from democratic homes. Such children become unpopular. Peterson and others (1961) found that harsh parental attitudes are related to such personality problems as shyness and withdrawal and to such conduct problems as truancy and stealing. However, another study by Hoffman and others (1960) found that those boys of the middle school grades who rated their parents high in coerciveness and also high in granting autonomy (freedom from adult supervision) were high in academic performance, group leadership and active friendliness. Thus, autonomy may overcome the results of coercion and promote academic achievement and interpersonal reactions.

Parental Acceptance-Rejection Attitudes. Long ago Symonds (1939) concluded that like autonomy-control, acceptance-rejection was a very significant psychological dimension at home. As evidence for "acceptance". Symonds noted that the parents are devoted to the rearing of the child; they give the child loving care and protection; they are demonstrative in affection; they look upon him as an individual rather than as a child; they participate in his games, hobbies *etc*; they are interested in his plans and ambitions; they do no expect too much of the child; they give wise counselling and encouragement. On the other hand, the evidences for "rejection" of the child are: verbal punishment, like nagging, scolding etc; failure to support the child; criticism or blame of child; unfavourable comparison with siblings; ridiculing the child; too much supervision *etc*. Symonds reported that the accepted children engaged themselves predominantly in socially acceptable behaviour while the rejected children manifested a number of unacceptable behaviours. Specifically the accepted children are good-natured, considerate, cheerful, friendly, cooperative, emotionally stable and interested in work. The rejected children tend to show attention-getting behaviour, become problems in the school and tend toward delinquency. A child who is rejected develops feelings of insecurity and inferiority; he has a low conception of himself as a result of the low view the parents have about him. Feelings of rejection may lead the child to attempt to win parental affection by various attention-getting behaviours like refusing to eat, or speak, temper trantrums, bed-wetting *etc*. If these tactics do not succeed, the child may either become hostile and aggressive or may become withdrawn and submissive.

The following diagram shows how these two dimensions in the home may be pictured.

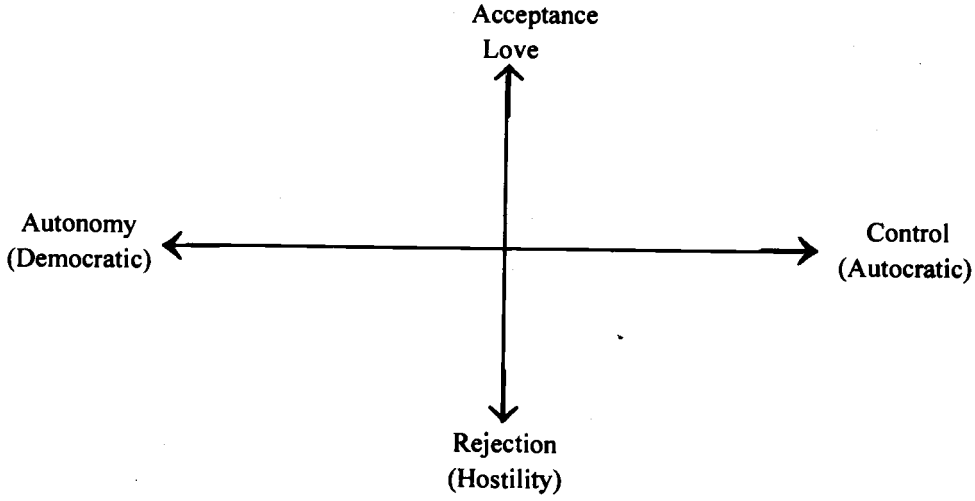

Fig. 23.1. Two major psychological dimensions in the home.

It must be recognised that the present state of knowledge is far from conclusive. The diagram only helps us to understand some of the problems involved in the situation. The attitude of the parents affect, if not the long-range aspects, certainly the short-range aspects of child development. It must also be remembered that there are differences arising out of sex due to the cultural situation. Hatfield and others (1962) found that mothers reward aggressiveness in their sons but not in their daughters, while the reverse is true for dependency. On the other hand, fathers showed greater permissiveness toward girls than boys. (Rothbart and Maccoby, 1966). Thus, when we speak of the effect of parents on their children we must take into account the fact that affection and control for boys and girls differ. Age of the child is also an important factor. In their report of longitudinal study at the Fels Research Institute, Kagan and Moss (1962) found that early maternal restrictiveness has a long-term effect in inhibiting behaviour; restrictiveness later, when the child is better able to judge the inappropriateness of the restrictiveness, may lead him to react with hostility.

Thus, it is apparent that it is not possible to establish specific relation between parent behaviour and child behaviour. Parent variables do not operate in isolation. The parents and teachers should bear these variables in mind when they are dealing with children.

Results of Some Studies on Child-rearing Practices in India

Minturn and Lambert (1964) studied the child-rearing practices in India as part of a cross-cultural investigation. The study was conducted in the Rajput caste in a village in Uttar Pradesh about 145 kilometres north of Delhi.

The Rajput mothers were rated as the least warm group among the six cultures studies. They also ranked low in the "amount of praise" given to the children. The lack of emotional expression in the mother was found to be one method of communicating to the children that moodiness is not to be tolerated. The Rajput mothers did not emphasise self-reliance in their children; they were willing to

help their children bathe, dress *etc.*, even when the children could do these tasks themselves. They frequently scolded the children for crying, even when they were physically hurt. Demands for attention were also met with similar impatience. Training in emotional unresponsiveness begins right at birth. Babies are put to sleep on cots completely covered with thick cotton quilts. With rare exceptions, neither adults nor children play with babies. Weaning does not result in any emotional upset in the children.

The absence of praise is designed to train the complaint personality required in the joint family. The parents believe that if children are praised they will become spoiled. Men often complained that women lost control of children because of too much praise.

The Rajput mothers are less warm and more hostile to boys than to girls. They also tend to use frequent and intense physical punishment toward boys rather than toward girls. Since many women told stories of unfair treatment of wives by husbands, and since a good wife is never hostile to her husband, it is opined that by displacement the mothers might treat their sons with coldness.

The mothers are more patient with younger children that with older children. They are more emotionally unstable with older children.

The mothers rank the lowest among the six cultures in responsibility training. This is because all the menial tasks are done by low-caste servants. So the children do not have many chores. Three of the chores, mentioned in the interview, are helping in the fields, pasturing animals and carrying water. All these are usually done by servants since the Rajputs are a high-caste group. Boys may help the men in the fields and girls may carry water, but these are not regular assignments.

As regards aggression training, the mothers are more concerned with aggression directed at peers that at themselves; they punish the former more severely than the latter. This concern for peer aggression stems from a desire to prevent quarrels which might disrupt relations among the women who must live in a common courtyard. The permissiveness concerning aggression to themselves seems to stem from the lack of participation of women and children in the economy. Generally the mothers scold all children who are involved in a quarrel without attempting to determine anybody's guilt, unless one child is several years older than the other. The mothers are not consistent about obedience training. They rank the lowest in the six cultures studied in obedience training. This failure to enforce obedience nullifies to some extent the consistency of the mother's treatment of aggression.

Carstairs (1957) in his study of the three "twice-born" castes of Rajasthan, has given some information about child-rearing practices which he collected from his adult subjects. He asserts that his informants were unanimous in declaring that it is the mother who plays the important part in determining what the child will be like when he grows up. It is generally believed that a person's health and strength depends on the mother's milk. Sucking is moderately prolonged; weaning takes place usually at about two and a half years; though the child at this time is able to eat solid foods, still the child is angry and cries for many days. During the first two years of life, a child is seldom separated from its mother, and is never allowed to cry for long. It is said that crying makes a child weak. A good mother will pick the child up at once and let it have her breast. In the joint family the grandmother also looks after the child. Because of the presence of grand parents, the parents do not fondle their own child in the presence of the elders. The mother has to show deference to her mother-in-law and so must look

on impassively while the grandmother makes much of her child. Until the age of 2 to 2½ years, when the child can walk and is "beginning to understand," the child is seldom reproved in any way. Till this age, it performs its toilet functions as and where it pleases. After two years, the child is asked to go out to the yard. None of the informants accepted the idea of slapping a small child because it soils within the house. Generally the grandmother scolds the daughter-in-law if she is harsh toward the child. As the child learned to accept responsibility for its own bodily cleanliness, it was also taught the importance of avoiding the polluting tough of the members of the lowest caste. If it happened, the mother or grandmother would call the child in and make him bathe and change his clothes.

In striking contrast to all this attentive mothering, the child's father is an aloof, seemingly an unwelcome figure. The reason for this is the deference he pays to his parents. The husband can't speak freely to his wife nor can he show affection to his children in front of the elders. But the younger informants said that they disregarded the rule and openly fondled their children; it was found that they could do so because their fathers were dead and they were themselves the heads of their households. Still the consensus of opinion condemned the unashamed display of affection to their children.

It must be recognised that both these studies refer to upbringing of children in joint families of rural areas where the daughter-in-law is under the control of the mother-in-law and where the son should not speak to his wife in front of the elders nor fondle his children. Further, both these studies are confined to upper-caste homes in which all menial work is done by servants and the children are not given these tasks.

It may be presumed that studies in urban nuclear families may give a different picture.

Shalini Bhogle (1978) has reported her study of child-rearing practices among three groups, namely caste Hindus (45), backward Hindus (32), and Muslims (52) of Hyderabad city. Of the 129 children studied 42 belonged to the rich group, 42 to middle class and 45 to poor group. The age range of the children was from 1 to 3 years of age. None of them had been enrolled in a nursery school or kindergarten. The data was collected using an interview schedule adopted from Sears *et.al.* (1965), which included items on feeding, weaning, toilet training and bathing. It was found that breast feeding started on third day among caste Hindus (73 per cent) and Backward Hindus (91 per cent), while among Muslims (71 per cent) it started on 5th day. While 50 per cent C.H., 81 per cent B.H. and 38 per cent Muslims used only breast feeding, 40 per cent C.H., 22 per cent B.H. and 49 per cent Muslims used breast and bottle feeding. Thus, while B.H. mothers depend most on breast feeding, the C.H. and M group mothers combine both. Also while 87 per cent of B.H. followed demand feeding, 35 per cent C.H. 38 per cent M followed scheduled feeding as against only 12.5 per cent of B.H. Thus, there appears to be some amount of awareness about child care in C.H. and M mothers, the B.H. mothers seem to be unaware of them. Most of the mothers of all the three groups believed that the solid food should be introduced in the seventh month. The entire B.H. group and 73 per cent of C.H. group allowed freedom to the child to roam about while eating, only 34.5 per cent of M. group do so, thus indicating that they are quite disciplinarian in their attitude. As high as 94 per cent of B.H. and 73 per cent of M others encouraged the child to eat by himself only 40 per cent of C.H. mother did so. As regards weaning, there is hardly any difference between the three groups. The weaning is after one year. It is abrupt in 38 per cent C.H., 28 per cent B.H. and 25 per cent M groups and gradual in 47 per

cent C.H. and B.H. and 38 per cent M groups respectively. It was found that the rich mothers tend to wean the child abruptly, while the mother of middle class and poor groups adopt the gradual weaning method. As regards bathing, while the majority of C.H. and B.H. bathe the child every day, Muslim mothers believe that the child may 'catch' cold if bathed every day. All mothers made it a practice to use incense immediately after the bath. Also all the three groups follow the custom of dressing the child in old clothes in the first week, on the basis of the belief that it would make the child remain healthy like the older child. All the three groups also have the custom of lying a black string round the waist and putting black spots on the forehead, cheek and feet after a bath to make the child less attractive. Regarding toilet training C.H. and B.H. begin bowel training first while the M group start both bowel and bladder training. Toilet training starts before six months among the two Hindu groups and 6 to 9 months in M group. While 61 per cent of M group use the pot from the beginning, only 27 per cent of C.H. and 12.5 per cent of B.H. use it. As high as 75 per cent of B.H. ask the child to ease himself any where he likes. In spite of these differences, about 30 to 40 per cent of the children keep dry during the day around 18 months. Also the husband cooperates in 60 to 70 per cent of the families.

An attempt was also made to study the three behaviour patterns with regard to aggression, dependency and sociability. It was found that 50 to 60 per cent of the child were sociable in the three groups. No marked aggressive behaviour in children was noted in any of the three groups. The same results were also found in the three socio-economic groups. Thus, the results show that neither the cultural factor not the socio-economic factor showed any significant difference between the three groups. Most of the children were social irrespective of the group and hardly any showed either marked dependency or marked aggressiveness.

Similar studies in different states of the country and different religious groups will be very useful.

In conclusion it may be stated that socialisation is perhaps the most important human achievement which is at the basis of the development of the human being as well as of the human society and culture. As will be noted later on failure of socialisation leads to socially maladjusted individuals, a prey to various disorders like neurosis, psychosis, delinquency, drug addiction *etc.* It may even be asserted that failure to socialise is at the basis of international conflicts ending in wars (Kuppuswamy, 1973).

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24
Emotional Development

1. General

No one is born with the innate knowledge of how to behave or misbehave—we behave the way, we have learnt to behave. We learn the signs of affection e.g. kissing, hugging and also that of disapproval *e.g.* yelling spanking. The child learns from his parents, siblings and other visitors. Why the child behaves in a desirable way—because that has been either praised or a behaviour contrary to that has been punished (Arya, 1972). The reward acts as a reinforcement. The reward can be either approval by words/gestures etc. or it can be a material reward like money/sweets etc. It can also be in the shape of giving him extra liberty for game/pleasure/food etc. This is not bribery—it is normal development in behaviour. However, if reward is given for something which is not right or is patently wrong, then the child is on a wrong path (Goodenough *et. al.,* 1942).

But a child should be allowed to function in a dual system of reality and fantasy (Piaget, 1928). Various factors influence the child's emotional development to a variable degree (Gabel and Erickson, 1980). Parental influence is of utmost importance and is described in detail elsewhere in this chapter. Similarly, stress of various kinds, especially that of illness, moulds the psychological development of a child (Vernon, 1965). Irrespective of age children recognise the limitations of their ability to keep well. But they trust the role of a physician and that of eating in keeping well (Rashkis, 1965).

Sigmund Freud's (1949) concern was human emotional life. He believed that biological or animal derives such as sex and aggression were the primary forces behind the development of emotions. What is an emotion? It is an energy which can be channellised in the right direction or suppressed, thus converting it into a destructive force. It is involuntary, uncontrollable state of mind of little duration (Dubey, 1986).

2. Basic Concepts

In early childhood, three emotions arise—fear, anger, and delight. At the age of 24 months, fear gets further differentiated to shame, anxiety and fear. Anger gets differentiated to disappointment, anger and envy. Delight becomes joy and hope.

Let us study various concepts of emotions (Erikson, 1950; 1968).

Anger

It is a complex emotion. The most important stimulus for the arousal of anger in a child is some kind of blocking, thwarting or frustration of his motives. The reaction is intense if no other substitute motive can be evoked at the time.

At a very early age the child discovers and makes use of complex techniques for protecting and enhancing the self-image. The child becomes very angry if something threatens his self-images. Anger is essentially a defensive reaction and is designed to protect somewhat tender image of the self-hood. A child may show anger when he is forced to view himself as being less powerful or less significant than the other (Piaget, 1969). As a manifestation of anger, rage or marked irritation the child may show undirected energy, resistance, retaliation, vocal behaviour or the combination of behavioural patterns. The child may show resentment in various ways. He may show violence on the persons in his surroundings or on himself and may injure himself. He may roll mercilessly on the floor and cry. He may start abusing the mother or father in a vulgar language and may even throw stones at them. He may tear clothes or venture to destroy certain articles of the house. He may burst into a sobbing without any physical injury.

Control of anger can best be achieved when the child's behaviour is viewed with serenity and tolerance. Self-control in parents is likely to be the best guarantee of self-control in the child. The child encounters strong social pressure on his anger and in turn he may search ways to deal with the feelings of anger and hostility. He tries to find out a substitutional behaviour which is relatively safe and socially acceptable. Abandoning violence, the child may show his anger by verbal hostility and aggression like teasing, swearing, fantasy, cruelty to objects, prejudice, bullying, anti-social tendencies or self-punishment. In such cases, the mother has not only to provide nurturance and tender loving care but also restrictions, limits, discipline and all other things which represent the boundaries of permissible behaviour. To be a successful mother one should have a realistic feeling. Only this feeling of the mother can help the child to deal with his negative and positive feelings.

Fear

Anger and fear are closely related. Emotional reaction of the fear can be most devastating and may promote the development of the unhealthy personality. But it is an important defensive process. In showing fear reaction the child not only shows the normal capacity to react to his emotions but may save his life from a danger which is real. The tremendous raw energy produced in the form of fear is a source of strength, protection and advancement. At the same time, fear is a potential source of disorganisation and destruction if it is unreal and occurs in response to a false sitimulus. Some authorities regard fear as a kind of initial internalised running away from the situation.

The fear of pain, injury, animals and ghosts, and of imaginary creatures has been of interest since long. Other fears have been that of darkness, traffic, drowning, financial loss, abandonment and separation from the dear ones. When the fear becomes excessive and tells upon the health, it must be treated. For ordinary fears the child's own developmental progress will bring revision not only in the type of things to feel afraid of but also the degree of the fear need to be afraid.

Anxiety

Major approach to the problem of anxiety and its prevention is the acceptance of the child as a

whole including its loopholes and worries. It is in fact very easy to add to the burden of the child, deliberately or inadvertently, by making the child feel guilty or anxious about petty things. The child has got many worries like many fears. But the parents with healthy personality can do away with them by repeated assurance to the child that he belongs to them and everything in the house belongs to him. He should not only be told but made to realise that he is safe and secure from all angles and there is nothing to worry about. . . . The child should not be shown any frightful situations, quarrels or pictures which may put a permanent impression on its mind that the world is unsafe and unreal.

An important source of worry for the child is rivalry. It is the cause of much jealousy for the child and is usually accepted as natural and almost inevitable condition, when there is more than one child in the family. If the situation is properly handled it leads to a sense of competition and progress. If it causes deep resentments and anger on the part of the parents the child may be subjugated for ever.

Joy and Happiness

It has been described as a condition of release of tension. When the child gets vacations or a holiday a lot of tension is released and he gets the sense of joy. Similarly in a game or in a party *e.g.* at a birthday party, as the excitement goes on increasing the child feels more and more happy. It is a gleeful excitement. The important sources of pleasure, joy and happiness for children include satisfying of physical appetites, pleasures associated with food and drink, fragrant odours, comforts of rest and relaxation etc. The emotional response of joy and happiness includes a good deal of shouting, laughing and running about.

Love and Affection

Love between a child and his mother is not only due to her being a source of food but also due to her being a source of bodily contact *e.g.* playing in her lap, sucking her breast, sleeping with her. When a child is taken to a strange place he usually remains composed and happy as long as his mother is nearby. If the mother gets out of sight the child is often seized with fear and distress. In the development of affectionate relationship the sense of bodily contact appears to take a special significance.

As the child grows up he gains the ability to appreciate the feeling of others, to sympathise, to feel compassion, to respond to the loved persons with thoughtfulness and tenderness. In response to bandages, blindness, injuries, accidents, attacks by other persons, the child feels greatly moved.

Self-hood and Self-respect

Each child strives to feel himself important. He wishes to realize his own resources and to gain importance. On the one hand, the self-shows a powerful impetus to grow, on the other hand it has a strong resistance to change. If the basic needs of the child are not met with it leads to the impediment in the development of self-hood.

The child's desire is to learn skills and to be independent so that he can function effectively and successfully. This sort of self-hood is essential for the development of a healthy personality.

The task of living with others involves for the child a rapidly expanding awareness of the individuality of the other people. The need of helping a child to love himself is by helping him, to accept the reality and rightness of these feelings, urges and impulses. This does not mean allowing him to express whatever impulses arise without restriction or inhibition. But it does include an awareness

by adults in the child's environment that the impulses are there, that they are real and that they are valid. He should not conclude of his own that child is not supposed to have such feelings.

Early years are important because they provide a framework of experiences, ideas, feelings, attitudes and concepts within which the childhood and adolescent personality can develop. Usually there are two personalities of the self. There is one that wants to be big, strong and independent, achieving, producing, expanding and self-actualising. The other wants to be small, protected, dependent, secure and nurtured by the strength of the others. The former seeks responsibility but the latter avoids it.

The two phases of the personality go on acting alternately.

Security

It is the general assumption of the child that the world is safe, friendly, nurturant and need-satisfying. The accumulation of successful, need-satisfying experiences around him lead to a sense of security. It brings to oneself the attitude of certainty. The child needs the satisfaction of all kinds in connection with the routines *e.g.* eating, sleeping, eliminating, warmth and comfort.

Failure to achieve desired results lead to over-whelming sense of guilt and insecurity.

Autonomy and Parental Authority

The child likes autonomy and does not want interference by anybody. A child of an innocent tribe is more likely to develop a healthy personality as it lives in a simpler material culture. He does know any valuable objects which can be damaged. He does not earn rebukes by breaking the glass articles or by spilling over the things on the floor and carpets. He does not get punishment after spoiling books or by tampering with radio or telephone. He is not required to learn the manners of sitting on a chair or dining-table. There is the striking absence of constant admonishment of the child to do this or that.

Repeated interference in the routine work by the parents or any other guardian leads to frustration and lack of confidence which promotes unhealthy development of the mind. Civilisation, incidentally, is loaded with many Do's and Dont's.

Schools and the Children

For the children who are misfits at homes, school is just another frustrating and unhappy experience. Child is asked to live in the company of an adult who does not show much interest in the child and may make an effort to mend the child with a cane. Violent behaviour of a teacher may intensify the feelings of disinterest in the child. He may interpret home and school as a joint plot designed to harass him. To such pupils truancy from the school and delinquency at home offers thrill and excitement in contrast to unintersting and confusing work. He tends to be impulsive. Since he expects failure, he limits less efforts or avoids them completely. Combination of inadequate resources at home, low motivation, little faith in success, leads to retarded success in the school and life as a whole. He tends to achieve greater success in the company of other less fortunates.

Formation of Sub-cultures and Gangs

Poverty, lack of education, feeling of subordination, unhygienic conditions and socially unhealthy environment give rise to an awareness of being the members of a subordinate group to the inhabitants of this culture. They develop a sense of inferiority and nourish a feeling of being isolated from the

mainstream of society. They do not like to mix with people of different cultures. The children of such cultures do not feel the security of even the most basic things of life at home. They cease to feel any bond of society since now he feels pleasure in a bondless society. So he starts wandering in the street in the company of many more unfortunates and hence a gang forms.

3. Essential Needs

According to United Nation's Declaration on the Right of the Child, every child has the right to affection, love and understanding. The parents should ensure him a sense of belonging and security. Also they should treat him as an individual in his own right and give him an increasing independence, within limits, so that he can conform to the social and cultural norms. They should promote confidence, while making available adequate play, activity and recreation. He should have adequate social and emotional interaction with parents (Ghai, 1982).

The following are the essential needs:

Nutrition

Every child has got the right to get good and wholesome food. He needs proteins, vitamins and energy foods to grow healthy. Starving children cannot be expected to grow into responsible citizens. Malnutrition strikes at the very root of development by sapping the health and vitality of the rising generation.

It is advised that the feeding programmes for the pre-school children should include locally available inexpensive foods. Pulses are important sources of proteins for an average citizen. Locally available fruits and vegetables can be had at very low rates.

Balanced Routine of Rest and Activity

Neither child wants to work like a machine, nor does he like to be idle all the time. It is the responsibility of the parents to see that the child is neither over-burdened with work, nor given a loose rope as to make him unfit for fulfilling his obligations to himself and the family.

Safe and Healthy Surroundings

For a happy and healthy life there should be no fear, either of a physical injury or mental trauma. Also his surroundings should have people with healthy mental attitude. An anxious person is like an infectious disease.

Some authorities believe that parents unwitting sanction or indirect encouragement is the major cause of stimulus for anti-social behaviour *e.g.* fire-setting, stealing, truancy and unacceptable sexual behaviour. Just as normal parents derive satisfaction from the good behaviour of their children, the parents having forbidden impulses, apparently derive pleasure from the bad behaviour of their children.

Parents, whose own poorly integrated prohibition permits them to overlook recurrent slight offences, suddenly react with guilt and alarm at the first suggestion of criticism from outside the home. The child so punished feels confused. He interprets this as a hostile blackmail and mutual corruption.

Periodical Medical Examination

The child should be examined by a doctor, every now and then to exclude the presence of any organic disease. This also reassures him that he is perfectly healthy and fit, physically as well as mentally.

General Immunity from Disease

Specific measures should be taken to protect the child from disease. During early childhood the child should be given vaccination against dreadful disease like TB. He should also be protected by giving oral vaccination against Polio. He should also receive triple vaccine to develop immunity against diphtheria, pertusis and tetanus. Also the child should be protected from starvation, exposure and extremes of weather.

Feeling of Security

During the early childhood mother is responsible for the fulfilment of certain essential requirements such as food, warmth, shelter, clothes and her own affection. If certain routine requirements are not met with, the child develops a feeling of insecurity. If he remains in a state of constant anxiety and uncertainty he may grow into an insane person.

Need for Love and Affection

Unwanted and uncared children may grow into delinquents. The parents should be emotionally ready to have and bring up the child before producing him.

However, in the circumstances of extreme poverty, where the life conditions are threatening the very existence, it is unwise to expect them to look after the child well. In any case the child will get the impression of being a burden. Neglected and uncared, such a child loiters about on the roadside in the company of many other less-fortunates like himself. There he can easily and readily learn all sorts of crimes.

Feeling of Unconditional Acceptance

Every child has got cravings to be loved and accepted by his parents, in spite of all the faults which he might be having. Some parents ridden with complexes expect too much from their children and thus inject the germs of inferiority complex in them.

Some parents feel that by being critical of every act of their children, they can teach them better. They would always undervalue the ideas and the acts of their own children, as compared to those of others. The child develops lack of confidence in himself and lack of faith in his parents. He may go astray.

Feeling of Adequacy and Recognition

Right from the beginning a child wants adequate love, affection and security in addition to sufficient material things. Later he likes to be recognised as an independent being with a distinct personality of his own. If a mother cannot love her child she cannot command him also. When the mother feels guilty of not having loved her child she may become overindulgent or hostile as a matter of compensation. The child grows into an adult who is inconsistent and lacks loyalty.

Similarly the development of the child is hindered if he is denied reward and recognition for his good deeds.

Sense of Belonging to Society

As the child grows he aspires to be a full member of the family, the group, the society to which he belongs. Man is a social animal. He has got the natural tendency to develop relations with the people

around him. The child develops a sense of belonging to society as he adapts to it by accepting certain norms of behaviour and imposing certain restrictions on himself as desired by society.

Need to Experiment, Learn and Express

A child seeks to explore newer and newer vistas to satisfy his curiosity and sense of adventure.

His environment of experimenting should be safe and encouraging. If the parents are over-protective and over-cautious, the child may be denied the opportunity to experiment and learn. This may retard his personality and tint it with dependency and lack of self-confidence. Expecting too much on the other hand may expose the child to failures, make him despodent and indecisive for the future. This may also impair his memory development (Mussen, 1978).

Sharing

Learning to share with others, especially with one's brothers, sisters or parents and guests is an independent social behaviour, which must be learnt. As child begins to share and can be coerced into giving his sweets or toys to others. An occasional lapse in his willingness to share is normal, and he should not be expected to share unless that conduct is reciprocated.

Setting Limits

Limits are set to assure the safety of the child. In a sense, teaching the child about behaviour that is best or safe for society begins by teaching him what is best of safest for himself. Both require self-control and functioning within a framework. There is no absolute way to accomplish this.

Limit-setting can begin around 9 months of age, when the child begins crawling. Allow the child to have freedom to grow and learn about his environment and limit him only when his safety is in jeopardy. The parent should not smother the child's curiosity by always imposing his will on the child.

4. Parental Environment

Environment has a decisive role in shaping the destiny of the child (Fischer, 1960). The parents especially mother contributes maximally to the emotional development of a child. Some of the influences of parental environment are given below (Ghai, 1982).

Parental Rejection

If birth of a child coincides with a tragedy in the family (*e.g.* death of a family member loss of employment or financial loss to the parent) it may be considered as a bad omen and may result in rejection of the child. Birth of an unwanted child, or a child of female sex or of disputed paternity can lead to rejection. The child can easily perceive the lack of warmth.

Parental Dominance

The parents try to impose their own values system, aspirations and philosophy on the child. This may build up stresses in the child's interaction with parent.

Overprotected Child

Overprotection may prevent the child to develop his sense of independence and autonomy. The child resists such interference in his or her life. Such oversolicitous parents feel frustrated at the attitude of overprotected child.

Over-expectations

They may try to push him to achieve scholastic goals, which may be beyond his level of competence. A conflict between the child's parent's expectations increases the stressful situation (Kagan & Moss, 1962).

Undue Criticism

Children are very sensitive to implied criticism or comparisons with other children. Appreciation and recognition of the achievement, of your own child is necessary. If parents ignore him and appreciate other children he begins to resent the parental attitude resulting in maladjustment.

Lack of Consistency

Some parents are strict at one time but become lax in attitude at another time. The child is confused. A consistent discipline is conductive to a balanced development (Herington, 1975).

Broken Home

A broken home due to parental discord, disharmony or separation is tragic for the development of the child (Demisoff, 1973).

Another Birth—Too Soon

The child's emotional need of affection and security may appear to be threatened with the birth of another child. The older sibling may feel deprived and this may initiate behavioural disturbances. An effort should be made to involve the older child in the care of younger one so that can relate to the sibling with love, affection and feeling of belonging.

5. Early Development

Development of a child starts right from the birth. The child cries as soon he is born to give evidence of his presence in the world. He smiles to see any human face to greet him by the age of three months. By the age of eight months he starts recognising his mother. At this age mother is a special object and is welcomed independently of her function of the reliever of hunger. The child can imagine her even in her absence. The child starts moving about by this age. He begins to recognise the body of the other person and that of his own and begins to recognise the roles of each one of the organs. The emergence of sexual identity provides one of the most important sources of individual differences.

If the child has to suffer separation after the age of six months, the results are disturbing. There may be sleeping and feeding difficulties for the child. He may lose appetite, suffer from diarrhoea, vomiting, loss of weight or irregular fever (Craig, 1980).

Experiences during the first fundamental years of life can have deep and lasting effects in the later adjustments of life. If the basic needs of a child are denied in the early days of childhood, he is denied of a stable emotional and social life. A sense of security is transmitted to the child through the behavioural attitudes and feelings of his mother. There is an emotional link between mother and her child called empathy. If the mother hated pregnancy and deplored the birth of the child, there would be feeding and fondling difficulties. In such cases, the infant remains ill-looking inspite of the best medical and nutritional care.

Toilet Training

Excreta, as the child thinks is the most wonderful material that he produces. But the parents often tell him that it is a fifth and it should not be passed all the time and everywhere. This causes confusion and anxiety in the mind of the child. The tension which thus ensues in the mind leads to all too retentive and conservative nature. He remains constipated and gets delayed learning of the habit, if proper training is not given. In addition he may become too much inhibitive and silent. So the obsession of the parents in having greater cleanliness is transmitted to the child in the form of aberration of the biological habits.

So the mental health of a family is not the summation of individualistic elements, it is connected with the interpersonal relationship.

Enuresis

This is a habit of passing urine in the bed after infancy to late childhood due to certain abnormal mental reactions. The child may develop this habit due to:

(*a*) Retaliation against the parents: This could also be due to jealousy for a brother or sister who is pet to the parents.

(*b*) Over-worried parents: During second of third year of life the child has got exhibitionistic tendencies, which are quite natural and pass off without any treatment. But if the parents are over-worried they may reflect their own guilt into the child. They may attach too much importance to this habit and may feel that this could bring indignity and defame to them. They may become too strict and prohibitive. This arouses child's inquisitiveness and aggression and this may prolong the phase.

As the condition is generally harmless and self-limiting, the child and parents need to be reassured. About 15 per cent of children between the ages of 5 and 10 years are known to be enuretic. About 1 per cent of normal children may continue to wet the bed till the age of 15 years. Every attempt should be made to minimise the feeling of shame or guilt. The parents are advised not to nag, criticise or reprimand the child for wetting the bed at night. The bedsheet, should be quietly changed next morning, without making the child conscious of it. The child should refrain from taking beverages, like tea, milk or sharbat after 4 of 5 O'clock in the evening. Child should be made to pass urine before retiring to bed. The parents should arouse him fully again after two or three hours of sleep and persuade him to walk unaided to the toilet to empty his bladder (Walker, 1976).

The bladder should be trained to retain the urine for longer time. This may be done by making the child drink large quantity of water during the day and persuading him to delay emptying of the bladder as long as feasible. In very resistant cases imipramine may be given in a dose of 25 to 50 mg orally at night for about 2 months. Imipramine is preferably avoided in children below the age of 6 years (Harper, 1962).

Training at Meals

Infancy and pre-school years are spent in the establishment of routine habits including feeding. Food is a symbol of intimacy and its value runs much deeper than just relief of hunger. Under eating and over-eating are symptoms of anxiety at times.

The child should be given good nutritious diet under very healthy conditions of environment. Child fells illness due to—

(*a*) painful experiences during feeding.

(*b*) if need for sucking for pleasure has been frustrated.

(*c*) if the sense of the trust in the mother has been thwarted.

In such cases, ill health is often used as an excuse to avoid unpleasant situations by children. Incidence of stomach-ache at the sight of unwanted food is rather high. A child should be encouraged to take food of his own choice, which should be nutritious also. The child should take it in a secure atmosphere and at his own will. Forcible feeding is no good. He should not be worried at time of meals. He should not take large pieces of the food and hurriedly swallow them. It is better if mother, and other members of the house are present on the dining-table. All the same the child should not feel too dependent upon his parents for taking meals. He should be allowed to assume greater freedom in such matters. Child should be given training in a very polite way about serving to others as he is grown up. But he should not be unnecessarily harassed for learning too many things in a hurried way. In fact, the child should not be given any unpleasant experience at the dining-table. If he gets persistently unhappy experiences in one pretext or the other, he would lose interest in the meals or at least would avoid taking it with other people.

However, if the child has developed or is developing any bad habit *e.g.* pouring the vegetables on the floor or on the table, he should be politely but firmly told that it does not look nice spoiling the floor or table cloth. He need not be punished for that. If the child is convinced that the habit is not good and nobody else, other than himself is doing it, he would automatically try to improve it. When the child is trying to improve himself, help him do that. Any punishment at this stage acts as a deterrent in his way, rather than doing any good. If child is kept dissatisfied at meals he may develop into a greedy and apprehensive individual.

6. Mental Life

All children deserve to be protected from sickness and disease. But if we forget that it is the mental life that gives meaning to human existence, we shall create people who are empty, purposeless and emotionally crippled.

At least one thousand million children in the developing world grow up under great stress. Those who are to protect and nourish them often have no means or knowledge which would allow them not to do so. Some survive and many, unnecessarily, die. Of the survivors many remain scarred, deprived of their chance to live a full life. They also want to fight, survive, feel happy, grateful or frightened. It is the mental life, the experience of living, which is rated highly and not the mere fact of survival.

Philosophers, decision-makers and politicians all agree that the mental health and development of children matters and that it is an essential guarantee for a better tomorrow. And yet, when it comes to action, psychosocial development and mental health are still low on the priority. Undoubtedly, treatment of physical disease is of tremendous importance and will have a significant impact on the mental health and development of children; but the idea that it is possible to improve the health of children by first dealing with physical diseases and then later with their mental health and development is dangerous

and incorrect. Improved somatic conditions are as much a component of health as mental functioning: one cannot be achieved without the other. Children who are malnourished, infested by parasites or sick with a multitude of diseases cannot use their mental potentialities properly: but if we forget that it is the mental life that gives meaning to the existence of a human, we shall create people who are empty, purposeless and emotionally crippled.

Surveys of general population show that the prevalence of persistent and socially handicapping mental health problems among children aged 3-15 years in developed countries is about 5-15 per cent, and more limited data from developing countries suggest a roughly similar rate. These numbers do not include children with mental retardation nor those with diseases such as epilepsy, organic brain syndromes, sensory impairements, any systemic physical diseases; the latter group of diseases often co-exists with and aggravates emotional problems, conduct disorders and impairments or delays in the development of normal functions which are among the most frequent mental disorders of childhood.

Thus in developing countries alone at least one hundred million children suffer from mental disorders, often complicated by or complicating physical diseases.

Most of these children are unknown to the health care system: even those who come forward are usually inappropriately handled. A WHO study demonstrated that up to one-third of all contacts that children make with the general health care services in an urban slum area are due to psycho-social problems. A good proportion of school drop outs do not continue schooling because of (usually unrecognised) mental health problems. Juvenile delinquency, drug taking and alcohol abuse seem to be growing even among younger children.

Effective measures for the prevention and treatment of mental disorders in childhood are now available, and that with concerted action a vast proportion of mental disorders in childhood and their consequences in later life could be wiped out at a cost that most countries in the world can afford.

Improved maternal and obstetric care could reduce perinatal complications, brain damage and mental health problems associated with it. Better nutrition coupled with appropriate psychosocial stimulation, effective immunisation programmes and improved general health care, appropriate accident prevention measures and better care for the chronically handicapped to prevent the occurrence of mental complications are all preventive general health measures that are immediately applicable and of proven efficacy. Social welfare measures—such as the avoidance of unstable and discontinuous patterns of parenting; improvement of day care facilities, hospitals and residential facilities, for example by ensuring continuity of staff taking care of children; review and adjustment of legislation; raising public awareness of the psychosocial needs of children and other measures—all these are within reach and could have measurable benefits. Areas in which such research must be undertaken include schooling in general, the influence of urbanisation and industrialisation of child health, ways of providing child care in residential institutions, and an examination of those factors that protect child health in situations which apparently expose children to a high risk of mental disorder.

Efficacy of certain measures—such as focused short-term counselling and behavioural methods—which are applicable at primary health care level and at a low cost has been proved. Epilepsy is amenable to drug treatment at low cost, and it has been shown that such treatment can be provided at the community level. The yearly supply of medicaments needed to treat a child with epilepsy can be as

low as one US dollar. Sensory deficits such as poor vision could be corrected by eye-glasses which—when pressed from unbreakable plastic—cost only 60 US cents. Yet these do not figure on the list of purchases for health services because the importance of sensory stimulation for normal mental development has not been given sufficient prominence.

First, the collaboration among the many agencies and social sectors which should join hands in improving child health is poor and is becoming worse. Programmes carried out in educational, social welfare and health institutions compete with rather than complement each other. The medical profession, which always regarded collaboration with teachers as a necessary evil, has become even more entrenched and isolated from other sectors, including education. The other relevant professions have also become obsessively concerned with protecting their professional interests, often to the detriment of the quality and quantity of services they render.

Second, the technology which could be made available for use at all levels of health care has been retained in the hands of super-specialists who, at best, advise other members of their team to treat children nicely, parents wisely and all other professionals suspiciously. How to implement concrete and simple measures that can be taught to a mother, a nurse or a social workers is often not disclosed; or when disclosed, is wrapped in jargon or hedged about by warnings of the possible dangerous consequences that will ensue unless the specialist is consulted continuously. Patients with whom progress is slow of difficult tend to be dumped into facilities or on to professions that have neither the resources nor the knowledge to provide adequate help.

Third, bureaucracy has, in many places, grown faster than science. It has managed to impose a variety of requirements, which undermine the action and turnable helpers into inept scribes providing reams of paper which will justify even more paperwork and even less solution-oriented action.

Fourth, health care, on the whole, has becomes marked by over-reliance on technology and consequent neglect of its human aspects. In the area of child health this tendency is particularly pernicious, since children do not choose where they will go when sick and are even less able than adults to offer resistance to unnecessary and abasing treatment.

Fifth, resources are scarce, facilities are few and badly in need of restoration; there are no staff, no funds and no essential supplies. In most developing countries there is no more than one psychiatrist per two million population; paediatricians are also in short supply; nursing and paramedical staff are far too few. In many countries, there are no posts for those who are qualified.

Sixth, the attitudes of the public, of decision-makers and of professionals are not supportive of new strategies of health care, particularly in the field of mental health. In the field of health care in general and child mental health care in particular, the models put forward by highly developed countries are not always conducive to a new approach, as those who advise and are convinced of the importance of primary health care and other community efforts know only to well.

Seventh, societal and cultural changes have created situations of increased risk to mental health and normal development in many countries. The breakdown of traditional social support systems, including the extended family, the replacement of community participation by communal services, information overload and many other factors all have their side-effects.

Finally, there are demographic changes, such as the increased expectancy of life, in part, resulting from our successes in overcoming some killer diseases of the past. There lead to an increase in the numbers of severely disabled children in most countries of the world.

In view of these constraints and difficulties which bestrew the road towards health for all by the year 2000, a new strategy of work in the field of health and become a necessity, based on primary health care.

Primary health care differs from basic health services and from other approaches known to medicine in that it places major emphasis on people and communities relying on themselves, on their own strength; in that it requires social service sectors to work together and support each other; and in that it restricts the role of the health sector to those tasks that it knows how to do and can do better than other sectors.

Against this background, WHO and UNICEF agreed a joint policy on mental health and psycho-social development of children. This policy reflects principles embedded in primary health care, in socially relevant medicine and in equitable cooperation among countries. It puts emphasis on the education of parents and other community agents so that they can perform their role in facilitating the healthy psycho-social development of children; it proposes mechanisms that will make it possible for different social sectors to work together and achieve more with their efforts; it promotes legislative and other social measures that will create the best environment in which a child can grow and live; it also makes it imperative to translate the best available knowledge into techniques which health workers can use in their daily work. Success depends on the world's determination to work towards a noble social goal: that of making it possible for children of the world not only to survive but also to live, to know why they live, and to understand what is happening around them (Norman Sartorius, World Health, 1982).

7. Developmental Problems

A reactionary child may suffer from one or more of behavioural problems or adopt various types of anti-social behaviour (Backwin and Bakwin, 1972). Let us study these problems.

Behavioural Problems

Biting: Biting is relatively common during the later part of the first year when the child is teething. This may present a problem in breast-feeding, but the child can be taught to suckle without biting. When the child bites the mother, she should remove her breast from his mouth and say "no" in a firm voice.

All teething, children in this age group should be provided with some hard but clean and sterile object upon which they can bite. Older children may bite as a means of releasing tension. They must be taught firmly that this is not an acceptable way of behaving. It is foolish for the parent to bite the child when he bites another because biting is not an acceptable behaviour for anyone, specially an adult.

Breath-holding: Breath-holding spells are sudden episodes of cessation of breathing preceded by crying. An episode may last as long as half a minute and may be accompanied by bluing of lips, loss of consciousness, and convulsions.

Breath-holding attacks occur between the ages of 6 months to 5 years, most commonly around 18 months. They occur more commonly in males. They occur due to anger, frustration, and conflict with parents or siblings and may be precipitated by pain, fear, or reprimand. Intervals of occurrences vary from several times a day to once every few months.

Measures should be taken to avoid precipitating factors. Understanding and kindness are helpful. Over-anxiety of the parents can spoil the child, if his every unreasonable demand is conceded. The attack could be aborted by strong physical stimulus like a pinch, applied at the onset of the spell.

Nail-biting: Many health professionals believe nail-biting results from tension, stress, or nervousness. It may occur when a child is in deep thought or in association with aggression and non-conformity. Nail-biting, can lead to complications like paronychia and hangnails.

Punishment, ridicule, nagging, and restraining devices are not helpful. Empathetic appeal to pride or reason may be helpful.

Temper-tantrums: Sometimes the child is very assertive and aggressive to achieve a success in his mission. But his assertions are not often met with patience and reason. The child in turn develops anxiety. Anger is the natural outcome. At this stage the outburst of anger should be met with calmness. Meeting the aggression with aggression makes the whole matter worse.

On the other hand, inhibited and shy child also cannot be considered normal because in him the tensions are directed inwards, which may give rise to many psychosomatic troubles. Also appearance of a situation before him which he does not like, may lead to headache, chest pains, loss of appetite, fears of the unknown etc., instead of anger and aggression.

Clinging: By the age of two years many toddlers suddenly cling to their mothers in the presence of strangers. This is a normal part of development. It may be difficult to leave the child alone for some time. Gradually the phase passes off.

Hair-pulling: This habit is also due to deep seated mental tensions. Encourage the child to be more spontaneous. Give him more opportunity to talk and discuss. Don't make him too inhibitive. Give him good outlet through play and physical activities.

Thumb sucking: Sucking of thumb or that of fingers, toes, wrists, lips, blankets, are all normal in early childhood. When the child can grasp voluntarily (by about 5 months) he almost always ends up in the mouth because the mouth is an exploratory organ at this stage of development. Teething may also cause a child to rub his gums with his fingers etc.

Thumb sucking reaches its peak between ages 18 to 21 months and is often associated with fatigue, hunger, and illness. Most toddlers suck their thumbs before falling asleep. The causes suggested for thumb sucking include, sucking as an expression of infantile sexuality, insufficient sucking feeding, boredom, insecurity, and for gaining attention. Certain types of thumb-sucking (past 4 years of age) may be associated with irregular teeth. This may correct spontaneously if the child stops sucking his thumb by 6 years of age.

Treatment is indicated only if thumb-sucking is excessive and occurs during the day time as well. Various devices *e.g.* elbow splints, gloves, tape etc. on the thumbs or fingers (Licbert, 1974). Or constant

nagging, ridiculing, teasing, or punishment can be harmful. A majority of children stop sucking at thumbs by 5 years of age.

Tics: These are mostly transient physical expressions of emotional difficulties and should be treated accordingly. Children under constant emotional stress, fear or anxiety may develop faulty speech or unpurposive abnormal movements to be relieved of their inner tensions and guilts (Kock, 1971). Tics include frequently blinking the eyes, rotating or rolling the head, wrinkling the forehead, strugging the shoulders, clearing the throat, coughing, and twisting the mouth etc. 20 per cent to 40 per cent of school-age children have them. The peak age of onset is usually 6 to 7 years of age. They disappear during sleep and are aggravated by anxiety, tension, or excitation. Often they are caused by emotional problems, like insecurity, or conflicts at home. Attempts to discover and alleviate underlying conflict situations are often successful, but not by scolding (Lowrey, 1973).

Clay eating: The child may develop habit of eating substances such as the wall plaster, clay, paint, earth, etc. Persistence of this habit beyond the age of 2 years may be manifestation of parental neglect, poor supervision or lack of affection. It is commoner in children, who are malnourished. These children are prone to develop lead poisoning and often complain of chronic abdominal pain. Treatment is by persuation and correction of malnutrition.

Crying: Usually a baby cries because he is hungry, wet, or otherwise uncomfortable. Six different types of cries are identified: (1) hunger, (2) wet, (3) playful coo, (4) tired, (5) plosive (explosive), and (6) anger. The parents are usually able to determine what type of problem is causing the infant to cry. Some infants tend to be at a fixed time, usually fussy and cry. This frequently occurs necessarily unrelated to any particular discomfort. It may be necessary to ignore this crying.

Negativism: At 6-9 months of age, he begins to strive for individualism. At 10 to 12 months, he begins to repeat actions that stimulate pleasure from parents as he seeks methods of attracting attention. Later on he becomes quite aggressive and determined to gain his own way. By the age of 3 he begins to realise the rights of others. At about 2 years of age he delights in performing exactly the opposite to what is asked. "Nahin" is his favourite word. His negativism is accentuated if it gains him attention. Parents should ignore the negative behaviour as much as possible, for it will essentially pass by age 3.

Sleep: The child may suddenly awaken after a frightening nightmare. Manifestation may include fear of the dark. Difficulty in falling asleep, night walking (somnambulism) sleep talking or night terror (Malunquist, 1971).

Stammering: Most children show some degree of repetition and hesitation in their speech at some period of early life. Whereas some children can speak very fluently, others are severely handicapped. It is probable that the children who cannot cope with the environmental and emotional stresses are more likely to stutter. Stuttering usually begins between the ages of 2 and 5 years, a period in which there is non-fluency speech. The parents and playmates, who remind the child of his stumbling speech or ridicule thim, aggravate his emotional stress. As a result of this, he loses his self confidence and becomes more and more hesitant in speech. The stress caused by conflict between the parental expectations and the child's achievements may precipitate stuttering in some children. Stuttering during the phase of non-fluent speech between the ages of 2 and 5 years will pass off, if they not show undue

concern and accept his speech without pressuring him to repeat or making him conscious of his handicap. These children can often sing or recite poems without stuttering, and this gives them confidence that the defect is not an irreversible handicap.

Fear Complex: A 6-month-old child may be fearful of strangers, and the 1-year old may be frightened by a strange object, that moves suddenly or makes loud noise. A 2-year old may be frightened of baths, flushing toilets, dogs, darkness. At the third year of age, he may be frightened by shadows, and imaginary monsters. At 4-years, child is fearful of fire engines and ambulance sirens, thunder, and other such noises may be terribly frightening to him. By 5 years of age a child beginning to lose his fears based on imagination. His fears now become more concrete *e.g.* the fear of falling from a high place or fire.

Masturbation: Masturbation is common in toddlers, pre-schoolers and adolescents. The child may experience a pleasurable sensation when the parent bathes his genitalia. If a child is discouraged from masturbating or he is severely scolded, shamed, or punished, he may develop intense guilt-feelings that endure throughout his life. If a child masturbates he should be ignored and there is no need to scold.

In the adolescent, masturbation is a normal reflex to explore newly developing sexual capacities. It may serve as a means of controlling sexual urges and fears. Every adolescent's sexual education should include discussion about masturbation. This is equally applicable to girls. Masturbation is quite normal in children of both sexes (Medimmus and Johnson, 1969). Special attention should be given to this situation before it results in deep-seated emotional conflict.

Occasionally, masturbation is excessive or may be performed compulsively to overcome chronic stress, when the advice of a psychiatrist may be sought.

Dawdling: Most children are dawdlers. This behaviour is probably a result of a combination of the child's interest in his environment and his non-ability to conform to the needs of the time. The children should be taught how to tell time and be given a reasonable amount of time to get ready. If this does not help, it may be necessary to let the child miss something of his liking to teach him that he must observe time.

Movement due to Stress: Such movements include body-rocking, head-rolling or nodding, and head-banging. The parents of a child with these movements should be encouraged to take in their laps the child more often and for longer periods of time. Gently rocking him to sleep, stroking his skin, and singing or talking softly to him are usually effective. If these simple measures do not help or if prolonged head-banging occurs, the child should be evaluated by a psychiatrist.

The Struggle of Rivalry: A certain amount of rivalry among children is normal. It occurs more frequently in first-born children. As a family grows, the intensity of the rivalry usually diminishes. Children learn to comprehend the division of parental affection that occurs with each new addition to the family. The intensity of jealousy seems to be greater in the overprotected or rejected child. Neither extreme is conducive to healthy relationships with siblings. The rivalry is likely to be most intense if the older child is between 2 and 4 years when the younger child is born. To the first-born the new sibling is seen as someone who will force him to be separated from his mother. The older child may be jealous of the younger, who has usurped the privileges the had formerly been bestowed upon the

"baby" of the family. He may respond with hostility toward the younger child by hitting, pushing, or biting. The hostile behaviour may manifest in a more subtle manner like persistent demands for attention. The child has to be assured of parents' love. The younger child can also be jealous of the older child (Mimdins, 1975). The child may show evidence of frustration by retardation in speech development, poor eating habits, sleeping problems and restless destructive behaviour. The parents should try to divide attention and affection equally among all children.

Parents should discourage sibling competition and comparison. When confrontations arise between siblings, the parents should handle the situation fairly and consistently. Besides wisdom and love, a sense of humour will be helpful to parents in dealing with the jealousies.

Stunted Growth: Children who suffer in security and lack of emotional warmth at home, (*e.g.* those brought up in orphanages and broken homes) may remain small in sise. Poor psychosocial environment, affects their intake, absorption and utilisation of food. The child may feel neglected, and suffer emotional deprivation. When these children receive emotional warmth and security, they show a catch up growth (Silver, 1980).

Learning Disabilities: About 10 per cent of children in school have difficulties in learning academic skills such as reading, writing, spellings or arithmetic, although they have a near normal intelligence (Wechsler, 1974). The child suffering from chronic illness generally does not perform well in school. Too frequent change of residence of parents upsets the academic schedules of the child. A child may not be able to fully comprehend the visual or auditory stimuli, so that the sensory inputs may not be adequately organised in the brain and he may not be able to coordinate his motor or behaviour activity according to the stimuli. Children with learning disabilities are impulsive and they react to the learning situation in sudden fits and often give inappropriate responses. Such children have a poor attention span and they are easily distracted by environmental stimuli. Some intelligent children can be dubbed poor learners by incompetent teachers who make learning a boring and unpleasant experience.

The children with learning disabilities may be apparently normal in early life. The low birth weight infants with history of birth anoxia or injury are more vulnerable to show learning disabilities. The children, who are easily distracted with a poor attention span, more demanding children or those who are hyperkinetic in their early life are more likely to show learning abilities (Weber, 1974).

Such children have difficulty in discrimination between right and left. They find it difficult to tie their shoe laces. They confuse letters of alphabet. They find it difficult to learn to read and write, limitate actions or draw figures. They are inadequate in those play activities, which require coordination such as catching a ball. Such children may be unable to follow instructions, because they become overloaded and confused. These difficulties may be related to the problems of short term memory. The child is unable to draw figures from memory, and is unable to retain and recall the class-room teaching and often forgets the messages. He may be able to give details of happenings in the distant past. This results in reading, spelling and writing difficulties.

He is easily distracted, appears impulsive and hyperactive, all the time moving from one place to other and continuously fiddling with things thinking capacity of these children is poor.

The symptoms: (1) Hyperactivity, (2) Poor attention span, easily distracted, (3) Impulsive aggressive behaviour, (4) Easily frustrated, irritable, anger, temper tantrums, (5) Socially inept. Does not make

friends easily, (6) Clumsy in dress and behaviour, (7) Poor sleep habits, (8) Mild speech disturbances and poor vocabulary etc.

Management: The teacher is counseled about the child's problems. Every effort be made to train the child through better appreciation of his problem. His curriculum should be individualised. Such children perform better in schools with small classes. If the child cannot cope with the pace of regular school, placement in a special school may be desirable.

The parents should provide emotional support and give him recognition (Watson, 1957).

Dependence-Independence: At 2 years of age, the child starts struggling to achieve a balance between dependence and independence. He may wish to do everything himself, but he realises that he cannot and becomes frustrated. Parents should provide opportunities for him to exercise his independence in an environment that is safe and conducive to exploring.

Anti-Social Behaviour

Stealing: To begin with every child feels all the world as his own and tends to take things at his own will and desire. Still the parents have the responsibility to fulfil the needs and demands of the child, so that he does not feel that the world does not belong to him. Too lenient or too harsh attitude of the parents towards the child would have serious reprecussions on the mentality and understanding of the child. If the attitude is very harsh, the child may feel pleasure in stealing things as a matter of revenge, and satisfaction of achieving things by force.

Telling Lies: Initially the child has got a vast world of fantasy. His imagination is vivid. He may talk things out of his imagination, which may appear lies. Accusing him of telling lies at this stage does incalculable amount of harm. Then the child deliverately and maliciously tells lies as a matter of retaliation. He prefers to hide everything from his parents and tells things in a wrong way.

Wanton Destruction: If a child is denied essential things of life which could be made available to him, he may conclude that if he cannot get these things, these should not be available to anybody. He indulges in destruction (Thomas, 1976).

Promiscuity and Adultry: If children are kept too much inhibited and too much strict discipline is expected of them, together with sowing the seeds of guilt through actions and deeds, they may go astray in the late life to compensate for the loss of freedom in the early years. Too rigid morals can lead to child taking to crime. While he should know what is wrong and what is right, some allowance should be given to the errant also.

Drug Abuse: A child, at 14 get way of youth can indulge in drug-addiction or drug trafficking and may take to several other crimes to satisfy his lust for chemical dependence (Roebuck, 1962). Such a behaviour is more likely to occur among those children who have been put to abuse themselves at some stage of their early life (Radbill, 1974).

8. How a Child Takes to Crime?

A child is more vulnerable to crime due to natural curiosity, innocence, ignorance about the implications and consequences. The children, who enter the gateway of crime due to one reason or the other, are known as juvenile delinquents. Juvenile delinquency can be defined as a condition of guilt, a culpable failure in duty, a fault, a misdeed or an offence committed by a youthful person.

A child has got his own world of thinking feeling and believing. He thinks that every person is related to him and everything in the world belongs to him. Any happening which thwarts his aforesaid belief, leads to a feeling of frustration. Any hindrance from anybody is unnatural for him. Gradually, he comes in contact with the realities of life and finds them stony hard.

Since civilisation rests on multiple inhibitions, we train our children to build certain inhibitions in their natural reactions and conform to certain modes of behaviour, which are acceptable to the society. At times, the child finds certain practices contrary to the preachings, the child gets confused over the double standards.

Some Causes of Conflicts in the Mind

(*i*) All round accent on materialism, (*ii*) Changing social and family pattern: The bonds of interpersonal relationship in the family are becoming more and more loose, and the same are unable to withstand persistently stressful conditions, (*iii*) Too many restraints: Doing this or that and not doing this or that are the source of constant stress on the mind, (*iv*) Poverty: A poor family living in slums, economically wrecked and socially down-trodden, loses appreciation for ideals of family and social life.

Causes for the Children to go Astray

So-called spoilt children come from poor and broken homes, live in slums and enjoy no recreational facilities. The root causes are unstable home, frequent quarrels between parents, insecurity, poverty and the company of the gangesters (Wirt and Briggs, 1959). It is a combination of factors. Boys are more often involved in the misadventures. Stealing is the commonest crime seen in practice. Psychosocial environment plays an important role.

Various factors in psychosocial environment are discussed below:

Death of Father/Mother/Guardian: A child feels started at the loss of a person who has been a source of love and satisfaction for him. He does not know whom to blame for his grief and misery. He feels baffled and does not know what to do. This child knew the world as a source of love and affection only. Now he cannot get the same satisfaction from any other woman as he drew from his mother and same love from any other man she drew from his father. His concept of universal love and sense of belonging is shaken.

In his mother he loses the only genuine source of love and tenderness if she dies. If he does not get a proper substitute in a mother figure, his loss becomes irreparable. If a guardian could look after him, in the absence of his parents he may not go astray. When he becomes a destitute, he is forced to indulge in crime without any inhibition.

Poverty: The prime requirements of any man are food, shelter and clothing. Some thinkers believed that in a state of absolute poverty, where these prime requirements are not met with, various crimes take birth. Where the parents cannot fulfil the minimum needs of their children, they helplessly see them becoming delinquents. A child is unable to make out the difference between the rich and the poor. When he sees a child of rich parents, wearing superior clothes, or sitting in a car or possessing toys, which he himself is not having, he asks for those things from his parents, who show their helplessness. When the child does not get satisfaction from his parents, he thinks of running away

from the home and tends to procure them with own efforts. He invariably meets failures in his mission, when he tries fair means. Then he tries foul methods, which work, so the poverty can push a child from the lap of his parents to the lap of crime.

Slum Dwelling: Slums are the areas in which there is much congestion. There is extreme of overcrowding at home—a huge family, consisting of young boys and girls of different ages sharing room with the adults. The overcrowding is not evident only at home, but also in the locality. The homes lack the basic amenities of life. The inhabitants are demoralised. Slums are a rich culture medium for bad elements, because all essential ingredient like lack of education, poverty, subordinate feelings, frustration, unhygienic and socially unhealthy atmosphere, are available in abundance.

Anti-Social Behaviour of the Parents: The kind of behaviour which may affect the child, from father is desertion, excessive drinking, unemployment, failure to support the family, frequent arrests due to one reason or the other. Overstrict discipline for the child and no discipline for himself may act as a fore-runner of delinquency. Presence of an anti-social father has its consequences in the form of quarrels in the home, separation and divorce, discordant and broken homes. Similarly anti-social behaviour of the mother may induce unhealthy traits in the children. It is usually the promisicuous behaviour which is transmitted by the mother to her daughter. Such mother may predispose her young daughter to pre-marital sex and other problems.

Neglect: Desire to belong to somebody and to be cared for is the most natural instinct which every child brings with him. If the people in society neglect him, he starts neglecting the society and its members. He loses interest in the surroundings. This may convert him into an introvert. He forgets about love and hatred and develops cold and apathetic attitude to his surroundings. In extreme cases he develops antipathy. He starts indulging in wanton destruction to get attention and notoriety in society.

Modern cult of hippism is also the result of neglect of the youth by the parents and society at large.

Ill-treatment meted out by Parents: The child expects an unquestioned acceptance and appreciation for his deeds. He would correct any wrong thing done by him, if so pointed out. But he would be disheartened if the parents rebuke him continuously and persistently. After all everybody commits mistakes in the world. If the child receives punishment on every act of his, he becomes too inhibitive. Then he has to wait and think for taking even very minor decisions. He gets the award of being too lethargic and gets further disapproval. He finds it difficult to get out of this circle and eventually resorts to revolt against the authority of parents.

Ill-treatment meted out by the parents to conceal their own shortcomings and guilts and to shirk their own responsibility to the child may prove disastrous. Similarly the parents may show ill-treatment to their physically handicapped child thinking him to be a burden. This injuries the child at least psychologically.

An immature and confused father may develop feeling of jealousy against his male child, whom his mother loves too much and the father feels neglected. He may take revenge by inflicting physical injury or rebuking the child for nothing. Also he may be in search of an opportunity to punish the child if the child could be found showing disrespect to him or defince of his parental authority. He may also show anger when the child asks many intelligent questions and he is incapable of replying to

them. The child becomes subdued and inhibited.

Lack of Security: It is the responsibility of the parents to provide to every child they produce, protection against hunger, disease, injury and fear of complexes. If there is lack of security in the home the child may question the sincerity of the parents and may play truant to search security outside the home. Also he may develop into a cold, affectionless and irresponsible person.

Lack of Confidence: If the child suspects the members of his family of faithlessness, he loses confidence in the genuineness of everybody and looks them with suspicion and even contempt. He may develop an urge to teach a lesson to this unfaithful world.

Unhappy Family Relations: Unhappy relations can develop due to multiple reasons *e.g.* poverty, quarrels among the parents over the genuine paternity of the child, unwanted child, where the parents were not psychologically prepared to rear the child. The child discovers alternate venues of pleasure in the roadside pavements and vagarancy.

Unhappy and Difficult Schooling: Most children enter a new world of school at the age of 5-7 years. There they stay in the company of practically a single adult. The teacher has to perform the difficult task of handling the children of different mental abilities, temperaments, home conditions, interests etc. In the Indian conditions a teacher for primary school is hardly a teacher worth the name. There is a big class, consisting of a large number of kids. There is a regular exchange of faces daily with the new ones. What to talk of knowing the names and recognising the faces of his pupils the so-called teacher often does not know even the exact strength of his class. He has got neither the capability nor the spirit to do any good to his children. He is just another dignified chaukidar, sitting on guard half-heartedly providing a dirty open or profusely congested premises to play and quarrel for the children. At a later stage the students start passing examinations. At the middle standard examination the child is confronted with a board examination, rigid curriculum, lengthy syllabi. The teachers do not appear to show any sympathy either with the students or with their studies. If the parents also become strict instead of listening to the problems of the child, the child takes it as an organised plot by the teachers and the parents. He may bow out of this set up to join a freer world outside the home and school.

Desertion and Deception : Desertion may occur inadvertently or may be motivated. Inadvertent desertions may be seen, while the parents are migrating, during war, earthquake, melas, big religious or political gatherings. It may be motivated when the parents deliberately desert the child to get rid of his burden, financial or otherwise. In such situations, the child will be denied the absolute sources of love and protection. He may land in the cradle of crime. Deception of any kind by the parents or any other near one, cannot find any favour with the child.

Kidnapping: Removing a child from the parents amounts to plucking a flower from a plant and transplanting it elsewhere. Criminal kidnapping is done with ulterior motives, especially in case of females, who are forced to sexual crimes. Kidnapping may also be done as a matter of revenge or for adopting a child. Results, as far as child is concerned are not good.

Family Tradition: If the child learns that one of his brothers or sisters had run away from home or for that matter his parents have been running from society, the child may attempt such an adventure himself.

Peer Group: If the companions of the child are potential delinquents, he may also feel tempted to join them in furthering the process.

Sexual Problems: Girls which are forced to sexual crimes are the victims of adults. Later on, they may take it as their way of life. They may have to part with their parents due to vagrancy, sexual gratification or due to blackmailing. They may also join it out of curiosity or per force. Once they enter this world they fall into a whirlpool of crime. One way of misleading young girls has been the temptation of making heroine in a film, drama, TV etc.

Some parents may force illegitimate sex on their children for earning. An unmarried girl becoming pregnant may have to adopt a different society later.

Desire for Easy Life: If the living conditions are hard for the child, he may yield to his desires for leading an easy life, which he may think he could earn by running from the home and parents.

Sense of Adventure: Some of the children have the feeling that they cannot undertake any adventure if they live under the control of their parents, who according to them are very conservative. They may get an idea of running away from the home, through the suggestions either from the friends or movies. In search of adventure, they find themselves surrounded by ruffians. They find it hard to break this cordon and become the members of this group.

Hatred for Social Restrictions: This may be intuition with some of the children to go against the norms of society, wherever possible. If the parents frustrate their attempt, they may escape out.

Desire for Revenge: If the behaviour of a step-mother or any other family member makes it difficult for a child to believe his own home as belonging to him, he may walk away in revolt and join a gang.

Case Studies: This scruffy boy of 14 stands before you on the charge of removing the railway fish-plates. He is a delinquent. His father the only earning member of the family died when he was just five. He has got 2 brothers and two sisters elder to him. But none of them is older than 12 and hence not capable of earning. His mother who remains ill and feels very weak has to work 10-12 hours a day but she cannot fill the tummy of all of her kids. For herself she usually does not plan to eat. Nikko who is the youngest has been very dear to him. But she cannot fulfil his demands. He has now started going on the roadside and now he meets many like him. He begs now. Still he cannot feel satisfied. Now he has grown older and does not hesitate to remove the shoes of a sleeping traveller on a railway plat-form or the small bag lying near a passenger, engaged in talking to someone or busy in purchasing a ticket. His field of operation is railway station. He does not break into the house of anybody, however he decamps away with whatever is lying uncared. Now he is a leader of a gang and plans his operation in an organised way. This is his biggest ever achievement. He has been brought to the court by the railway police on the charge of removing fish-plates from the railway tract. He has become a delinquent. It is difficult to rehabilitate him now.

This girl Neeta 14, is another delinquent facing you. She lost her mother when she was of 9 years. Father is a poor labourer and goes to his work daily in the morning. She could not be sent to any school. Now she wanders aimlessly in the street and mixes with the boys and girls of different ages. She stands on the roadside when the boys and girls dressed in guddy clothes go to schools. She also aspires to wear good clothes but cannot. Father has shown indifference to her demands. Whatever he

earns he spends it on wine. She thrives on the small pieces of bread given by her fellow children or found lying on the road side. She thinks of herself as most dejected and neglected. She does not know how she could ever get clothes and meals like other children, whom she sees. Here comes Ratia, the milk vendor of the street. He has kept an eye on Neeta. Today he has talked to her nicely. She is very grateful to him. She is now 12-year old. He has very kindly offered her a cup of milk. She has taken milk after a long time today. Ratia appears to be the only one who is affectionate to her. Now she goes to his residence quite frequently. He brings her near himself and asks her to sleep with him. She agrees readily. She does not know what it means.

Now she does not know how many Ratias have asked her to sleep with them. But now she gets good clothes. Her father when came to know of it first, felt hurt, next day he is indifferent to it and now he does not mind supplementing his own funds for wine, from her earnings. So poverty coupled with deprivation and alcoholism forced an innocent girl in the den of crime.

He is Ghasito, aged 13. He has come after removing the purse from the pocket of a C.I.D. Inspector. His father had desired him to be a big man in life. Being a poor man himself he provoked his young son of 8 to have a car, a banglow, a corps of servants and what not. He himself passed into a state of ill mental health and is staying in a mental hospital. The child did not get the proper stimulus later now. He runs away from home and wanders about in Bombay streets. A man apparently kind hearted and genteel offers him employment. He expects the child to mastebate him and wants to force sodomy upon him. The child again comes back to the streets of the city and develops friendship with the people who are his professional friends now. He is a juvenile delinquent now.

She is Veena, aged 16, who has been held many a times on the charge of vagrancy with different boy friends. When she was 10 she had a friendship with Ramu, the mischivious boy of the street. It was first a friendship between two children, not based on sex. Veena belonged to a poor family and Ramu was from rich family. Mother of Veena herself guilty of adultry and sexual promisicuity from before her marriage infused the guilt in the girl and asked the girl not to mix with Ramu and told her that it is a matter of shame to mix with the boys. This aroused curiosity of the child and made her vagarant. By now she has frequently changed her boy friends. She has become delinquent due to over-worry of her mother and her convictions that the rich boys take advantage of the poverty of the poor girls, for which she was herself guilty.

He is Raj, aged 16. Death of his parents has forced him to seek employment to feed himself and his younger sibs. Seth Balwant Rai has been very kind to him to offer a job. But Raj finds himself busy in looking after an illicit distillery. He has to carry opium and other contrabands to and fro. Today he has been caught from a gang of active smugglers.

She is Neena, now aged 17. Her father has to go on his job early in the morning when he returns, Neena is already asleep. This is happening, since when she was 5 years old. Her mother is chronically ill and hence remains bed-ridden. Three years ago when Neena's younger sister got ill she had to stay with her in the hospital. A young doctor of the hospital who become interested in her flesh, bestowed his affection upon her, out of all proportions. She became a victim of his criminal designs. She has frequently changed her sexual partners since the doctor induced her to take to the crime. She is yet to be produced in a juvenile court.

This boy, Shanty 17, is son of an army Brigadier and is facing the charges of murder of his father, with the help of his mother and sister, aged 15. He comes from a rich family and had his education in a convent school. The sub-culture in which all the members of the family grow is that of clubs, wine and women. Father had several girl friends. Mother and daughter had several boy-friends each. Father was enraged when he came to know about the pregnancy, caused by his son and slapped him by saying you son of a bitch. This precipitated the issues. Mother and daughter had their own score to settle. From wordy dual they came to blows and finally succeeded in throtling the Brigadier, who was under the effect of alcohol. Brother and sister are juvenile delinquents due to the sub-culture in which they have grown.

9. Psychological Aspects of A Spoilt Child

Man by birth does not know, what is wrong and what is right. Self-interest is the main thing in doing a thing primarily. Such interests are consistently reinforced by rewards, appeals and disapproval. He gradually abandons his unacceptable behaviour through fear of detection and unpleasant consequences.

The behaviour of a delinquent child is directed towards immediate gratification of his own selfish impulses, which are called Id impulses. Id impulses are stronger and are based on animal instinct. Appearance, manner and language all are typical of certain types of groups of adolescents and young adults, who are in rebellion and conflict with their parents and society.

Unchecked delinquents grow into psychopaths. Usually a psychopath is a male of age under 40, of lower socio-economic group, with defective super-ego, with no regrets, guilts or depression for anything, uninhibited, reckless, anti-social, amoral, unreliable, irresponsible, lier, cheat, thief, promisicuous, addict, indifferent to religion and society.

From psychological point of view, following types of delinquents are known:

(*a*) Predominately aggressive.

(*b*) Predominately passive.

(*c*) Predominately creative.

A delinquent may show his typical behaviour, as individual or in his peer group.

Dynamics of Delinquency

Delinquency involves a major defect in the ego and super-ego. Some people consider it to be a condition with holes in the super-ego. Anti-social acting out on a child is fostered and sanctioned by the parents who vicariously achieve gratification of their own poorly forbidden impulses for their own hostile and destructive wishes towards the child. The term acting out is used to refer the behaviour against the authority which is specifically forbidden by society.

Various Factors

Hereditary Factors: There is no specific hereditary pattern in such cases and a multifactorial inheritance would offer a much more reasonable explanation. However, the environmental factors, offered by the parents have a big meaning. Maladjustment between the parents and the sibling, offer a faulty model of identification and the individual is subjected to adverse experience throughout the childhood,

so that his psychopathic personality has come to be regarded as learnt response to the environmental stimulus rather than a manifestation of inheritance.

Somatic Factors: In a number of animal-species the aggressive behaviour goes with the sex. It is usually a male and the aggressive behaviour could be checked by casterating the animal. In human animal undue aggressiveness and recklessness tend to be maladaptive and frequently arouse censure from society.

The environmental factors which affect the psychological behaviour are:

(*a*) Parental rejection.

(*b*) Parental indulgence.

The predominant pattern of the early experiences appear to involve various combinations of parental absence, rejection and indifference, inconsistent rewards and limits, conflict between the parents and with society at large, covert approval of anti-social behaviour. In quiet a few cases there is history of temper tantrums in childhood, repeated difficulty with teachers, resentment of discipline or open rebellion and truancy.

Socio-cultural Factors: When the group behaviour norms are no longer a binding or are valid in an area for a sub-culture of population, then the individual behaviour is likely to be deviant. Lower class children are likely to be reared in the surroundings which are quite different from the surroundings of the middle class. This leads to status frustration and loss of self-esteem. The children of alike social conditions draw together in small groups and gangs. Thus they attain an equal status in their own sub-culture and may grow rebellious against the middle class system. Once a favourable image of the self has got internalised by the pre-adolescents with respect to friends, parents, schools and law, there is every reason to believe that it is difficult to alter the self-image. A delinquent does not exist in the vacuum, it is a part of the social life of a community and varies with the social organisation changes. It is evident that it involves maladjustment to society and that it is much easier for a juvenile to cross the comparatively low threshold from maladjustment to delinquency. Most of the children who appear before juvenile courts are not psychologically abnormal and are only victims of social insecurity or the grinding poverty of a combination of both. It is the feeling of insecurity that gives rise to anxiety and which in turn produces aggressiveness. This gives rise to a feeling of guilt, which further gives rise to anxiety and a vicious circle is formed. The circle can be broken by the development of stable and secure relationship as a foundation of inner security that lies at the base of moral independence and consideration for others.

10. Sociological Aspects of A Spoilt Child

Sociologists maintain that delinquency for the most part is a reversible process. It is a product of simple and direct processes of learning and represents the efforts of the person to find and vindicate his status as a human being. There is good evidence to indicate that this disorder has got a good prognosis. It may represent a safety valve, if looked from the point of view of wider aspect of mental health.

Delinquency is more common in an urban society, since urban society is more complex and mechanised. Urban society faces the problems of divorce and separation with a greater frequency.

When a father abdicates his responsibility, leaving to mother to bring up the children, the boys after puberty may overvalue the rebelious behaviour to which they may resort. He may indulge in proven offences to reassure himself of his own courage, independence and virility.

Institution of Family: The female partner is bound more closely in the marriage and family bond, because of her closer association with procreation. Hence, whatever may be the social circumstances she will continue to be the nucleus of the emotions of the family. It is said that a functionally adequate home encourages growth, confidence, frankness, respect for personality, ability to face reality. A house may be called inadequate because of :

(*a*) Large family and inadequate resources.

(*b*) Defective discipline in the home.

(*c*) Overstrictness and over-discipline.

(*d*) Over-fondling with the child.

Institution of joint Hindu family is peculiar to India and is unique in the sense that if provides protection and security to the non-earning members of the family and hence brings cohesiveness in the whole family. But it has hazards, too.

The mother can look after the family and take care of the child as long as a new one has not arrived. Where there is a sense of overcrowding in the family, the children have to spend most of the day outside the home in the company of street children. At night the children have to sleep in an overcrowded room. His sleep is disturbed at night and the sexual life of the parents is projected to him. Also in a poor family the children have to share the burden of the family at an early stage. If there is any maladjustment between the parents it puts pressure on the growing personality of the child.

Urbanisation: Urbanisation has affected the family in various ways:

(*a*) Increased complexity of the economic and social organisation.

(*b*) Increased mechanisation and standardisation.

(*c*) Increased secularisation.

(*d*) Increased regards for selfish ends.

This increased urbanisation has put strain and stress on the family life of an ordinary citizen. Father and sometimes father and mother both are involved in the affairs of earning and they have hardly any time for the affairs of the child.

Mother is entrusted with the dual role of providing affectionate care and maintaining discipline. If mother is a working member of the family she may not be able to exercise any of the two roles. The child not only feels neglected but also free from any control.

Any planning now has to be done in the light of new realities of modern life. Following points have also to be kept in mind, in the modern set up:

(*a*) Emanicipation of women from the fixed type of household work, (*b*) Easier life due to new scientific techniques, (*c*) Availability of the facility for sending the kids to private nurseries, (*d*) Availability of the facilities for planning the family.

The Environment: Normal development of a child may be jeopardised, if the child is living in an environment, which is not congenial for a healthy development *e.g.*

(*a*) Where minimum needs of the life are not available.

(*b*) Where there is discontent and discord in the family.

(*c*) Where an environment of immorality is prevailing.

(*d*) When the child plays in the company of criminals, who may make the children victim of their nefarious activities.

The employer of a child may induce the child to undertake criminal acts for his own benefit *e.g.* to work in a distillary for illicit liquor or to indulge in smuggling. He may force sodomy or other unnatural acts upon him.

Similarly the parents and friends may rob the child of his innocence by pushing him to the state of crime from where he cannot turn back. This is particularly true of the mothers dealing in the flesh of their daughters. It is all the more unfortunate that the police may induce the child to the den of crime for its own ends.

In these circumstances the child may resort to the elopement and may like to find shelter with any one who shows a little love for him. If the child is confronted with the same or similar behaviour, he may conclude that there is no way out now and he shall have to do all these things everywhere. Thus he may take crime as his way of life by exclusion.

11. Sociopath

Inhibitions are social organs for socialisation. One who lacks the social restraint or exercises too much of it, is considered mentally unhealthy. Sociopath is father of a delinquent. Such persons are not acceptable to society. With the increase of sociopaths the number of delinquents has also gone up. The personality of such an individual, shows cracks. In most cases, the reasons are traceable to the family itself.

Sociopath of today is likely to have grown up in a lower class family, living in over-crowded house in slum areas, son of a working mother and of the family which is socially and financially dependent. This family might have moved from place to place frequently. He has been losing job through absenteeism, in subordination and drinking. Also he spent whatever little money he earned on gambling, illicit sex and alcohol. More so he mixes with the models of anti-social behaviour which are available in plenty in the locality. Lower class communities are in-effective in inhibiting and channellising the delinquent behaviour. Once the bad habits appear they invade more and more psychological areas of the child. The symptoms become multiple, repetitive and frequent.

Once the sociopathic personality is established, there is less hope to get it retrieved by the clearance of the slums or removing other causative factors. The tendency to go against the legal and moral norms becomes deeply embedded in the personality and it goes on flaring with the passage of time. It is a familial disease and once an individual is affected, it spreads among other members of the family and neighbourhood. The child gets the low social status by virtue of the behaviour of his father. Neighbourhood of delinquents reflects a personal and social failure on the part of that small section of the population. Naturally the children from the blue-collared families are more pre-disposed.

In a house, where father is addict, there are bound to be beatings, brawls, financial ruins, emotional misery and dishonour. A life of disharmony and discord will result in the maltreatment of the children and makes the children go astray. This is also common in the families which expect and force a high standard of behaviour on their children, but consider themselves above the self-laid principles. Their attitude towards the children is stiff and does not admit any flexibility for them. This may particularly be true when the families are large and the number of children is more. This leads to reckless spending and exhaustion of resources.

In a country like India where mother has to divert her attention to rear a new child almost every year the condition is even worse. The elder child who has been the sole owner of the maternal love so far, has to part with it completely. He feels deserted and this gives rise a feeling of rivalry and frustration. The child may even conclude that this all is a designed plot to denigrate his person and to tease him, particularly if he comes to know that the child production is voluntary and is not just a matter chance.

A Sociopath

An adult sociopath diagnosed as a moderate case would be more or less as under:

He will be usually a male, unskilled worker, who has been frequently out of job and has changed the nature of the job frequently. He is living in slums in a far-flunged corner of a city where the basic amenities of life are lacking. He is like a parasite in the community. He had many arrests since early childhood. He has attended juvenile court as well as a sessions court. He might have stayed in a mental hospital for sometime. It is likely that he is married and that too more than once. He might not be living even with his present wife. He has not been faithful to her. Nor she has shown much consideration for her husband. He drinks freely and excessively. He is virtually friendless and does not participate in any specific organisation. However, he has got certain accomplices. He has hardly any contact or any affection for his parents or sibs. He may show abnormal traits of behaviour and exhibits the symptoms of depression or anxiety. One or more of the following abnormal traits might be noticeable in his personality:

Restlessness and heightened excitability, day-dreaming, laziness, lack of concentration, generalised anxiety, timidity, shyness, specific fears of the unknown or seeing horrid faces when they are not there, poor bladder control even at an elderly age, frequency of urination, nervous habits like nail-biting or showing cruelity, aggression, outbursts of anger and abnormal tempers, frequent crying, telling lies and stealing, headache, stomach-ache, constipation, disobedience and multiple obsessions.

Contrary to the above, a mentally healthy person will show general feelings of happiness in spite of shortcomings, reasonable independence in activities without undue feeling of hesitations or guilt, self-confidence, fairly relaxed, awareness and sensitivity to the feelings of others and eager attention to the new tasks rather than a feeling of being state and disinterested.

In case of a *female sociopath*, the problems like a delinquent girl have been more and even mainly that of sex and family relationship. She has indulged frequently in adultry and multiple divorces and may be without an issue. She has been arrested and punished but to a lesser extent. She has needed more financial aids.

Sociopath personality may count for a considerable number of deaths due to accidents, violence or suicides. They have a high rate of geographical mobility and they prefer to be newcomers in any case.

If one wishes to choose a most likely candidate for a later diagnosis of sociopathic personality the most suitable will be from among the boys referred for theft or aggression, who has shown diversity of behaviour. His anti-social behaviour involves him with strangers and organisations as well as teachers and parents. Such boys have a history of truancy, staying away from the family as vagrant, theft, disobedience to authority and of telling lies. They were generally irresponsible about the time as well as money. They were interested in sexual activities and had homosexual experiences not infrequently. Their parents complained of their habit of bedwetting and poor growing. Such girls had more of sexual problems.

Most of them have been vagrant *i.e.* staying away from homes without permission or consent from the parents. (Such children in the urban communities are often found loitering around the factories, markets or shopping centres). They play about in a darkyard where the sun hardly shines and indulge in anti-social activities conducive to the criminal career. Sleeping at the railway platform or in the waiting room add to their tendency to commit crime. Some of the children indulge in pavement dwelling, a life in regression—an example of human life of extreme adaptability and power of endurance. They are the samples of humanity, who fight back nature's hazards with their exposed existence, taking food raw and stale, roaming half named, sleeping in the open on foot-paths, having no hearth whatsoever, nor shelter. These children cannot be expected to grow into healthy citizens. They come to the cities because nobody is known to them or belong to them. Some of them may come there to hide themselves behind the gaint and anonymous life of city to avoid guilt and shame. Some others may be physically handicapped and others mentally handicapped. Still others are likely to lead a life of parasites on the society.

The children develop in an atmosphere of white-collar crime. They lead a life of broken homes. Technically broken homes are those in which there has been death, divorce, separation or desertion of one or both parents. So the homes of sociopaths produce delinquents and then delinquents grow into sociopaths. This chain reaction goes on for generations. Delinquents come from the homes of following types :

(*a*) Homes with criminal patterns.

(*b*) Homes where the personal relations are unsatisfactory.

(*c*) Homes where one of the parents is disabled, feebleminded, blind, deaf or suffering from psychoneurosis.

(*d*) Homes where socially or morally ill-adjusted.

(*e*) Homes under economic strain.

In some of the well placed families temper patterns of husband or wife may lead to an unhappy living. There is no real deficiency on the part of the home.

Wife may feel ashamed of the psychopathic personality of her husband and she may complain:

(*a*) My status is no better than a household drudge. He has never taken me as his equal. He is a reactionary in the marital sphere and is a little Hitler in the household.

(*b*) My husband has got a volcanic temper. He has often beaten me in the presence of our children and our guests.

(c) My husband has never looked upon me as a person, he always looked upon me as a piece of pleasurable flesh, meant for his enjoyment and entertainment. His touch is clumsy and awakward and it brings me a fresh humiliation every night.

(d) My husband is under the thumb of my orthodox mother-in-law, who wants to rule over me.

In such cases a good and happy home may get converted into a house of discord and may have to be labelled as a broken home at a later date. The children of such houses feel trapped in such a tangle. One can find a feeling of shame on their face, with no fault of their own. One day they will subject the society and their own being to the ignominity and turn into delinquents and criminals.

Similarly the husband may feel ashamed of the psychopathic personality of his wife. He may feel humiliated on seeing her and this may decrease their affection and the harmony of the house. He may complain:

(a) I have committed a mistake by marrying her. There is no doubt that she is the daughter of a rich father and brought a lot of dowry, but she has never treated me as her husband. She behaves and calls me as her groom, only to serve her like a menial. She would sit and pass order as if I am there to attend to every petty household work.

(b) My wife is very possessive. She would not expect me to leave her alone even for a minute and would attach least importance to me as far as my other appointments are concerned. She thinks that she is the only one for me to look after and I have no other work.

(c) My wife is beautiful and apparently faithful. But now I am convinced that her posing as my wife is a secondary affair. She has converted my home into a brothal.

(d) My wife is of a very suspicious nature. She starts asking the details of my stay outside the home even for a few minutes. She doubts me without any rhyme or reason. She precipitates quarrel if a laby clerk comes to me for dictation, or I talk to somebody's wife or I go to a shop where a sales girl is working.

(e) My wife is queen Cleopatra for me. She cannot tolerate my relaxation even in my own home. If I place my coat on the table for a minute or on a sofa or my tie is not found in order, she will make a fuss of it. She will say that it is her insult, if her husband wears clothes like this or that. She will say 'I am busy cleaning the house and various articles but you are busy undoing what I am doing. Children in such homes feel ashamed of their sociopathic parents. So much so that they may refuse to own them.

The children may complain:

(a) My father is a chronic drunkard. He has neither any love for me nor any attachment for the home. His interest lies in wine and then talking thing irrelevant and is abusive to us and our mother.

(b) My mother is a prime-minister in the house. She has never loved any one of us. She knows only how to go to a night club.

(c) Our parents have always impressed upon us that we, their own children are useless fellows. They have developed a complex that their own children could not be sociable or good

mannered. They may even be surprised at the achievement I show in studies and doubt that it is unnecessary favour by the teacher and I never deserved it. If the parent are well placed they take the result due to their own influence.

(*d*) Our parents do not like our presence even for a moment. They always say that we are unnecessary burden upon them and they feel they never wanted us to have or rear. They say that they are the results of their follies and they have suggested us to quit the house many a time.

(e) Our parents beat us at the least provocation. We have developed aversion from the home and contempt for our parents.

The children may ask myriad of questions to clarify their doubts and learn the reality. But the parents may take it as an act of shame or outrage and a challenge to the parental authority. They may not reply to the questions and may even scold them of beat them. Such parents who do not want to give any freedom to their children are bad parents. The child gets confused and feels frustrated. They are more likely to go astray and show open rebellion to the parents. Parents in turn become more strict and give more punishment. So a vicious circle starts.

12. Prevention of Juvenile Delinquency (J.D.)

Before analysing the preventive measures of J.D. it would be relevant to have another look (even at the expense of being repetitive) on some of the factors, which make or mar the development of a child (Wirt and Briggs, 1959).

Various Factors Which Shape the Destiny of the Child

People: Destiny of the child is more or less moulded by different influences of various people, whom he comes in contact in his early childhood. Wrong and misleading information, incorrect instructions and unnecessary fear-phobias propagated knowingly or unknowingly lead to faulty and lopsided development. Efficient, correct, truthful and balanced guidance is absolutely necessary for the development of healthy mental attitudes.

Family: Increasing absence of love and respect in our families, with lack of sympathy and mutual attachment are not conducive to the development of a healthy mind. Constant quarrels among the members of the family, misunderstanding between the parents, cross-talk and loose expression in the presence of the children, tell upon the mental health of the children. Parents must behave with sobriety, calmness, sympathy, love and humour with the children. Many difficulties faced by adults have their origin in early deprivations, tensions and conflicts which lead to the development of 'Undesirable personality patterns'. Failure to make successful and satisfying relationship can also cause abnormal personality.

Pressures: Pressures to think, feel and believe in certain ways come to bear upon the child before he is old enough to offer an alternative thinking, feeling and believing. Pressures regarding personal cleanliness, wearing clothes, manners of eating, modes of conversation, ways of paying regards to the persons of older age and higher status; all are the part of the complexities of pressures brought bear upon the child. Efforts of children are directed to reinforce their needs to conform to the least standards of the broad limits of the society, so that they may not run the risk of being ridiculed.

Encouragement and Support: We all need encouragement for our deeds and want support at times, but some people need support more than others. Lack of support may induce a sense of insecurity and lack of confidence. A growing child under the various situations of stress and lack of security find themselves whirlpooled in frustrating situations.

Poverty: Most of the delinquents come from the poor, unhappy, unhealthy, under-privileged, over-crowded and broken homes in the deteriorated neighbourhood. No child is a born delinquent. It is the sum total of transmitted behaviour which is assimilated from the surroundings.

The dilemma of aberrant behaviour passes on and on through the social and family environment and possibly through the genes.

Juvenile Delinquents: India 1970: The share of juveniles in Tamil Nadu is the highest (37.02%) of the total juvenile delinquents in India. It is followed by Maharashtra (20.30%) and West Bengal (10.71%). Gujarat, Madhya Pradesh and Delhi have 7.38 per cent, 7.01 per cent and 5.25 per cent, respectively.

In the medium group (1-2.5%) one can find the states of Uttar Pradesh, Karnataka, Andhra Pradesh, Rajasthan and Bihar.

Thirteen states and union territories have a share of less than 1 per cent. The lowest being in Andaman and Nicobar Islands (0.03%), followed by Goa, Daman and Diu (0.04%), Chandigarh (0.10%) and Pondicherry (0.12%).

The sexwise distribution of delinquents is that 93.24 per cent of them are boys and 6.67 per cent are girls. All the states and union territories show a higher share of male juvenile delinquents.

The highest share of female delinquents is observed in Maharashtra (30.78%), followed by Tamil Nadu (23.16%) and West Bengal (21.19%). Delhi, Gujarat, Madhya Pradesh, Andhra Pradesh and Karnataka have 7.87 per cent, 6.39 per cent, 3.05 per cent, 1.97 per cent, 1.77 per cent of female delinquents, respectively. The other 13 states and union territories show a share of less than 1 per cent.

Among males, Tamil Nadu has the highest percentage of delinquents (38.0) followed by Maharashtra (19.54). West Bengal (9.63), Gujarat (7.13) and Delhi (5.05). In Andhra Pradesh, Bihar, Karnataka, Rajasthan, and Uttar Pradesh, the share of male delinquents ranges from 1-2.5 per cent. The other states and Union Territories (13) have a share of less than 1 per cent.

Facilities

The facilities for prevention of crime are still in embryonic stage. Also people are shy of seeking psychiatric care, for preventive purpose, because of the social stigmas attached to it. Thousands have suffered silently, only to avoid this stigma. But with the awakening due to education and advancement of science, more and more patients now report to the clinics.

Preventive work in the mental health means much more than the job of a psychiatrist. It needs an efforts on the part of the government, community and every individual to strive for the betterment of society. It needs better sanitation, housing and nutrition.

The question of prevention deals with the processes which make the mind of juvenile people weak and unstable. After treating an offender, we have to ensure that the child would not meet the same frustrations again. Only a systematic community health programme can promise anything good.

Teachers in the schools will have to be equally careful to bring about a change in their own attitudes and that of their pupils, so that we can usher in an era of all round health and build a happy society. The teachers should normally observe the following:

(*a*) Achievements beyond the capacity of the child, should not be expected.

(*b*) Teaching should be palatable and interesting.

(*c*) Should not be aggressive.

(*d*) Should provide security to the child.

(*e*) Should be ready to forgive his faults.

(*f*) Should not inject the germs of inferiority complex.

Some Other Measures: For the children who indulge in dishonesty, cheating, disorderliness, failures and truancy, following measures would be desirable:

(*a*) The cases which are too persistent and grave; refer them to specialist.

(*b*) Improve the disciplinary measures.

(*c*) Accept the child and avoid undue comparisons.

(*d*) Avoid creating a bad reputation of the child by talking about him here and there.

(*e*) Help him to have some happy experience.

Treatment

A great transformation is needed in the trends of the management of crimes and the treatment to be meted out to the juvenile offenders.

Evaluation of the aggressive behaviour of juvenile offenders is a complicated matter. One is required to understand the realities behind the situation. The psychiatrist should be able to establish a rapport with the delinquents and should be able to see him in the relaxed state before taking any decision. Parole may have to be given to study the reaction and the behaviour of the child.

Increasing emphasis is being placed on the rehabilitation of the criminals, on his restoration to the society as a law abiding citizen, who will fully participate in the life of the community. The traditional approach has been to wait until the crime has been committed and then having caught the criminal to award his punishment, varying in severity according to the gravity of the crime. The punishment satisfied the desire of the community to take revenge and also acted as deterrent, and denied the offender the possibility of repeating the crimes during detention. Modern social defence aims at giving society maximum protection, both by eliminating the cause of the crime and by giving the criminal appropriate treatment to prevent repetition of the crime. The concept of social defence does not imply abolition of punishment, but he is given an impression that the future regarding the rehabilitation is not hopeless, if he becomes a law abiding citizen. It is to be made clear to him that his ultimate interest and that of society lay in abandoning crime rather than pursuing it. A sense of responsibility needs to be developed in the child. The length of the punishment should vary upon the time required for the treatment, rather than the gravity of the offence. The father of the nation had desired that 'the jails should act as hospitals, where the criminals should be treated like patient's.

The fact, that his release from jail depends upon his own efforts, places him in the position of challenge to improve himself. This helps him in rehabilitation and integration with society.

Mental hospitals now are not like asylums and do not look like prisons. Such hospitals are simple and open and as near the population as possible, to break away any feeling of isolation. In case of juvenile offenders, one has to avoid any harassment and punishment. The whole idea is to give him a feeling of sympathy and welfare. When his fault is cognisable he is taken to a juvenile court led by hand (not handcuffed) and shown due consideration in the remand home. The basic idea of the juvenile courts is that the state acts as a guardian of the child, when the parents are incompetent to do so. Main precaution to be taken is not to implant an idea of guilt in the mind of the child. Even the policemen dealing with child or present in the court are dressed in plain clothes. After the magistrate has given the decision, the child goes home and remains under the supervision of a probationary officer. More often he is sent to a certified school. More difficult boys, who are too persistent to commit crimes are sent to the borstals, which is like a jail and a governed by the Inspector General of Police.

Remand home is a neat, observation home for the forgotten and neglected children of big cities where the child is placed under the supervision of qualified psychiatrists, probationary officers and other trained personnel. Efforts are made to improve the child's physical and mental well-being. Elementary schooling is given and various arts and crafts are taught. The child is kept busy in games and other recreational activities. The boys are taught carpentry, smithy, powerloom weaving, tailoring, printing, book-binding etc. to reshape their lives into useful citizens. Most important rehabilitation for the girls is a successful marriage.

The real treatment of the juvenile offenders lies in the fact that the conditions which led to the provocation for their going astray should be met with. The causes for such crimes are many and are complicated. Quite a few of them can be dealt with, where the impressions are false and feeling of insecurity is not real. However, we will have to go a long way to remove causes like poverty. We may not be able to remove the poverty but we can always make our youngmen and women more useful by teaching them to earn their livelihood.

To remove this giant problem, we have to deal with the problem of dishonesty, corruption, concentration of wealth in a few hands, unemployment and over-population; apart from the problems like poverty and immoral traffic.

Components of Emotions

Emotion, like intelligence, is one of those words that most people can use but few can define. It involves three components:

1. The first is a feeling state: happiness, fear or whatever.
2. The second involves changes in the internal functioning of the body.
3. The third is related to external changes in the body, in particular to posture, movement or facial expression.

Taking these in reverse order it is readily apparent that *bodily posture, movement and facial*

expression are related to emotional states. We are familiar with the stiffening body of someone who is afraid or the relaxed smile of someone at ease. While this component is familiar there is no universal agreement on the messages that they convey. It is true that a laugh or a smile is a laugh or a smile wherever one is but hand gestures are easily ministerpreted. A cheery wave to one person may be seen as a threatening movement to another.

The second component can be illustrated with an example. Someone walks into a house and hears a noise that could be made by a burglar. Immediately there is a *physical response*: increased heart rate probably, sweating and a dry mouth possibly. The mechanism underlying these physical changes is located in the body's *central and autonomic nervous systems.*

The autonomic nervous system controls smooth muscles and glands, and its functioning is closely related to that of the central nervous system. When something stressful is perceived the CNS (central nervous system) goes into action and initiates activity which leads to a release of the hormone ACTH (adrenocorticotropic hormone) stimulating the adrenal glands, situated just above the kidneys. It is the adrenal glands which secrete adrenalin and noradrenalin, leading to physical arousal, and it is this physical arousal that manifests itself in a pounding heart and a dry mouth.

The first component referred to above is that which most people immediately think of when they hear the word emotion—it is that related to *feelings*.

Studying the feelings of an infant is almost entirely a matter of conjecture for no boby can tell the observer anything of the feeling behind the expression emotion. It is not totally guesswork though, for one can make an educated guess from the nature of the circumstances pertaining at the time.

Pleasure and Fear

Pleasure is first evinced by smiling and laughter. The smile and other signs of affectionate behaviour are among the first manifestations of emotion looked for by parents.

Fear is more age-specific than any other emotion; that is, certain fears are typically found at certain ages. This is not to say that there are two-year-old fears and four-year-old fears and so on; they shade into one another more than that. But it is possible to predict that there will be a gradual shift from the specific to the general—that is, in early childhood fears are centred around specific objects of events while by adulthood more general themes are paramount.

In early childhood the most common fear-producing stimuli are *loud noises, animals, high places, sudden movement, the dark, pain* and *strange people,* places and objects.

Not all these appear in full force. Fig. 24.1 shows the development of the fear of strangers, for example. As the graph shows, a fear of strangers, develops between seven and nine months; it is sometimes called 'the eight-month anxiety'. What the graph does not show is that at the same time some children develop an interest in strangers; some babies even show interest and fear within a few moments of each other. Putting together what has already been noted on attachment, it is possible to predict that a baby will show less fear when at home, in the mother's presence, when the stranger is a child rather than an adult and female rather than male and when the stranger moves slowly.

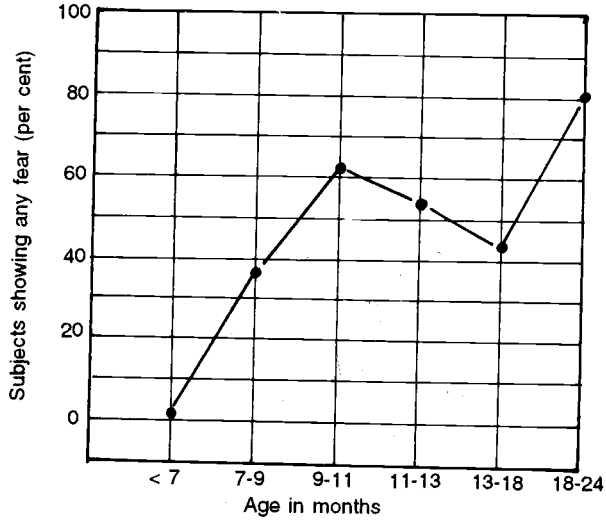

Fig. 24.1. The development of the fear of strangers.

Adapted from S. Scarr and P. Salapatek, 'Patterns of fear development during infancy', Merrill–Palmer Quarterly (1970).

The *peak period for specific fears* is roughly from two to six years. During this time children are mature enough to recognise that something may be dangerous (whereas the younger ones may not do this) but they are not yet capable of realising that there may not be a personal threat involved.

Older children move towards fearing *ideas* rather than objects: the supernatural, characters from television series, ghosts, witches and so on. They, too, retain a heightened fear of stimuli which occur suddenly and unexpectedly, as horror film makers are only too aware. The abrupt movement that terrifies the baby is mirrored in the sudden appearance of the villain's face on the screen.

Variation in fear is not related only to the situation in which the stimuli appear. Precocious young children tend to have more fears than their age mates, perhaps because they are more aware of possible dangers. It is more socially acceptable for girls to show fear and to have more fears than boys; girls in some circles are taught to fear mice or spiders. Fatigue and hunger are likely to predispose towards fear, as is being with others who are afraid: fear, like laughter and crying, can be catching.

Fear-related Emotions

Shyness is defined as a shrinking from contact with strange people, rather than objects or situations. During the first year of life a fear of strangers is more often observed than not, the theory behind this phenomenon being that at this time babies are aware that the other person is strange but have not yet learned that strange people are not necessarily a threat. Most children pass through to a stage where

they may be properly wary of strangers but not shy once a friendly relationship has been offered. Others remains shy and since this state is overcome only through experience and since they are too shy to gain the experience of making a relationship with strangers, the condition persists, sometimes into adulthood. A common factor at all ages seems to be an uncertainty about other's reactions—a fear in older children, for example, that they will be ridiculed.

Embarrassment overlaps with shyness in that it is evoked by people and relates to an inability to predict how others will behave. It differs from shyness in that it is not aroused directly by strangers but is more narrowly related to fear of how others will judge one. Because it demands a certain sophistication of thought it is rarely observed before five of six years or age although, as with all emotions, there is considerable individual variation.

Embarrassment is one emotion that is likely to get worse with age, for older children are haunted by memories of times when everything went wrong and everyone laughed. This leads to a vicious circle: embarrassed children have memories of their embarrassment, which leads to a poor self-image which leads to a greater chance of embarrassment the next time round. One further difference between the shy and the embarrassed is that the former are likely to say very little, the latter may say too much.

Worry is seen by some as an 'imaginary fear'. Unlike 'real' fear it is not a direct result of an external stimulus but is the product of the child's own thinking.

The first point to note is that there should be no automatic assumption that worry is bad or abnormal, any more than fear is abnormal in itself. What causes concern is an amount of fear, worry or whatever that causes undue distress to the child or those around him. A life without fear of any kind would be a relatively short one, for the world is a dangerous place with much properly to be afraid. of.

Childhood is sometimes construed by adults as a period without worries: the carefree child trips through life, with food and shelter and love all provided, how can there be worry? Such a view is quite wrong. From the age that they are able to imagine something not immediately present children have the capability for worrying and they often use it. But they do not always fix on adult subjects. One girl of six heard that in the class she was about to move to there was a strange subject called 'geography'. She had no idea what this meant and for the whole summer holiday she worried that a teacher would order her to 'do geography' and she would not know what to do.

Generalising about the topics of worries is not possible since much depends on the culture in which the child lives and the social, political and economic conditions of the family. Typical worries in some societies are that parents will divorce, in others that a father will lose his job. With puberty, worries begin to centre more directly around the body and its functions and appearance.

The *expression of worry* is much harder to *be aware* of than is the expression of many other emotions. Some children look worried, some manage to hide their feelings but communicate that something is wrong by being very quiet. Others may develop abdominal pains or some other somatic expression.

Anxiety develops from fear and worry. It is an uneasy state concerning impending or anticipated ill, a characteristic being a sense that the individual cannot escape. It is different from worry in that it is concerned with general rather than specific topics and it comes essentially from subjective rather than objective origins. It often develops after a period of intense worry that seems to undermine the

child's self-confidence so that there is a predisposition to anxiety. Like other emotions, the presence of others who also manifest it can make it worse: an anxious mother is likely to transmit anxiety to a child.

Because it is both a product of the mind and because of its subjective nature, anxiety is much harder than most emotions for a child to deal with. Worries can be talked over because there is, by definition, something to discuss, but this is not so with anxiety. The result is that many children try to mask their feelings, by showing off, by withdrawing into a fantasy world, by excessive television watching, by constantly denigrating others. (It is not only children who use these devices for masking anxiety.) Anxious children may also overeat, or sleep a great deal, or feign boredom. In many cases the behaviour listed above is unconscious and all the harder to deal with.

Depression in adults in characterised by a sense of despair, coupled with disturbed sleeping patterns and possibly loss of appetite. It is argued by some that prepubertal children never experience a full, adult-type depression, but whether they do or not there is circumstantial evidence of despair in young children; for example, the baby left alone in hospital or orphanage often shows behaviour including listlessness which certainly looks like depression. The study of 10-year-olds on the Isle of Wight already mentioned suggested that about 12 per cent showed signs of misery.

Anger is experienced when wishes or activities are blocked, either by someone or something else or by one's own incompetence or weakness. One of the best sources of data on temper outbursts is the work of *Florence Goodenough,* who asked parents to make daily reports of their children's behaviour. Although this work was carried out in the 1930s it remains a valuable piece of evidence.

Babies respond to minor physical discomfort with outbursts of anger and they may respond similarly if they are unable to make themselves understood. The peak of outbursts is around the age of two years—not for nothing is this period referred to as the *terrible twos*—when children are beginning to assert their individuality, when they can do so much more than they could earlier, but are aware of how much they cannot do. During the first three years over half the conflicts noted in Goodenough's sample were with parents but during the fourth and fifth years peers became more involved. After the second or third year outbursts became shorter, with a corresponding increase in sulking.

Older children still have conflicts with their parents but the causes are more complex than mere restrictions of physical activity. One example of the complexity of the older child's anger is the fact that some will insist on setting themselves unrealisable goals. When these are not reached the child becomes angry and casts around for someone to blame.

Jealousy is a response to actual, supposed or threatened loss of affection. Once again, it is in itself a normal emotion but it can cripple. It is an outgrowth of anger and fear, the jealous person feeling insecure in his relationship with a loved one. Two major sources of jealousy are:

1. *The sibling:* The new baby is an obvious source of jealousy but some younger children express the emotion in the face of perceived continued favouritism shown to an older sibling. A sick child invariably receives a great deal of attention from the parents and can also be a source of jealousy in others. This can even take the form of the well child feigning the same symptoms as the one who is sick.

2. *Social situations*: For children these are usually centred around school. A child who is insecure at home may set much store by the favours of a teacher or another child and then may have feelings of jealousy about that person.

Envy should be distinguished from jealousy: it is a state of anger directed at a person who possesses something coveted. The most obvious example is envy of material goods but the more imaginative child can be envious of the emotional support given to others but not to them.

Emotional Deprivation

Emotional deprivation is one of those vague phrases than can be used glibly, providing an oversimplified explanation for a complex situation. In fact, total deprivation of emotions is impossible: what is usually meant is a severe *imbalance in emotional experience*, leading to a *lack of affection*. In turn this gives rise to few opportunities for joy, healthy curiosity or happiness.

There are several *causes* for a deprivation of affection. A child may be in the kind of institution where little personal attention is given. A parent may reject the child for any number of reasons. Later in life the child may reject parents, perhaps because upward mobility has led to a shift in social class for the child.

The *effects* of deprivation of affection are much harder to describe. It is easy to fall into the trap of concluding that there is a simple equation: deprivation of affection=outcome. Actually, the outcome is likely to be determined by many factors, with deprivation of affection being only one.

An example of suggested outcome is failure to thrive: a delay in normal growth and development. L.I. Gardner used the word deprivation to describe a case of a male twin who was rejected emotionally by his mother while his sister was cared for normally. At 13 months the female twin was of almost normal height while the boy was the size of a seven-month-old. As was mentioned above, there is a relationship between perceptions and the functioning of the nervous system and it is assumed in cases such as this twin that a depressed state leads to the inhibition of secretions of the pituitary hormones, including the growth hormones. It is deceptively easy to stop at this point. In fact of course there is always the possibility that children deprived of affection are also deprived of food or at least of food of the more nourishing kind. Deprivation of affection can also lead to loss of appetite and apathy so there may be a two-way process involved.

Other reported outcomes of deprivation include slow motor development, delayed speech, poor concentration, hostility to others and selfishness. The same warning about the dangers of oversimplification should be kept in mind.

The *long-term effects* of deprivation of affection are now seen as less serious and less clear-cut than was the case a few years ago. Formerly, it was believed that such experiences automatically resulted in an adult with an 'affectionless' personality. Now it is recognised that later good experiences can go some way to offsetting the bad; the deprivation of early years is a contributory but not a sole factor.

Too much affection can be as potentially damaging as too little. Parents who are oversolicitous teach their children to be the centre of the universe, as anyone who has had anything to do with a classically spoilt child realises very quickly. These children are summed up in the demand 'I want, I

want, I want and I want it now'. Unless their perspective shifts, and it often does when they go to school, such children demonstrate little interest in others and find themselves isolated from their peers and disliked by adults.

Theories of Emotions

One theory of emotions and their origin is concerned with the functioning of *the brain and the autonomic nervous system*, as outlined above. Since such theories are not strictly speaking developmental, except insofar as the nervous system develops, they should not concern us here, but for the sake of completeness one example of experimental work can be given. In the 1930s there was much interest in the hippocampus as an important area in mediating emotional behaviour. Two workers ablated the temporal lobes, including the hippocampus and amygdala, in monkeys, rendering the animals 'emotionally unreactive, docile and fearless'.

Learning theory (see Chapter 2) is properly a developmental approach and there are some readily believable examples of learning certain emotional responses. Many children learn to be afraid of dogs, for example. Learning can be by imitation; a parent who is afraid of mice is likely to find children following the example. And children learn the socially acceptable ways of behaving when they feel emotions: in most cultures boys are taught not to cry. While learning theory is attractive in this context, it does not explain all aspects that have been discussed in this chapter; notably it does not explain totally the age changes in the types of fears that are experienced throughout childhood.

Cognitive theories focus on the child's *understanding* of what is happening, and again are useful in explaining some of the phenomena. For example, the fear of strangers is summed up as 'an unassimilated discrepant event producing uncertainty'. In everyday language we might say 'we are not sure what to make of this person and so we are at a loss as to what to do.'

Attachment theory has obvious relevance for some emotional behaviour, especially that related to loss and abandonment. But it, too, fails to explain all aspects of emotions. It has little to say on sex differences and again more is needed if one is to understand all changes with age.

Perhaps the search for a single explanatory theory of emotional behaviour is, given our present knowledge, futile. An understanding of many different approaches can result in an almost complete picture, analogous to a jigsaw. If we are at a jigsaw stage in explaining emotions we are not admitting defeat in our search.

QUESTIONS

1. Distinguish between feelings and function as they are related to an understanding of emotions.
2. Explain behaviour towards strangers within a developmental context.
3. What would you look for to confirm the view that a child is emotionally deprived ? Is the term valid anyway ?
4. Is it invariably harmful to be worried ?
5. Compare and contrast jealousy and envy.

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Emotional Development in Children

Emotion and feelings are state of affective experiences and they serve distinct purposes for individuals in adjustments and determination of their behaviour. In fact, nearly every behaviour is atleast partly determined by the affective state of the individual at that point of time.

Since the beginning, psychologists have been attempting to bring out the difference between feelings and emotions. Even now difference of opinion about whether they are of the same affective state or are different from each other only in their degree of intensity exists. Some consider feelings to be mild and "exist as background states" whereas emotions are intense, stirred up experiences involving a greater part of the central nervous system, endocrine and visceral systems of the physiology. According to these psychologists, aesthetic feelings, sex, annoyances or irritation and affection are feelings, whereas anger, fear, jealousy and love one regarded as emotions.

Approaches to the Explanation of Emotions

A variety of opinions regarding emotions, their genesis, development and dynamics have been expressed variously by psychologists. A broad theoretical framework explaining the same has been given by different schools of thought in psychology and followed by experiments.

Sigmund Freud of the school of psychoanalyses gives considerable weight to the emotional states like 'frustration', 'anxieties' and other bodily and mental disequilibriums in the development of personality thereby insisting that these states play considerably important roles in determining man' a adjustment to the reality and normalcy. He also says that emotional experiences of childhood and 'repression' of desires not fulfilled either directly or by wish fulfilment affect the growth of a normal personality and later behavioural adjustments. The behaviouristic approach of W.B. Watson stressed the physiological basis of all human behaviour and even such processes as thinking, perception and also emotions. His main contention was that all such processes, which are ascribed to 'mental' mechanism, in fact, had their roots in physiological changes in the human body and they are determined by them. In the ensuing times, researches did indicate such physiological basis with regard to emotions, *i.e.* the involvement of the endocrine the visceral and the autonomic nervous system. In the study of nearly all the human processes which could conveniently be ascribed to the dynamics of mental processes, Watson[1] had adopted the experimental method and rigorous scientific methodology.

James Lang who continued working on these lines presented a classical theory of the dynamics of emotions and their explanation, which was initially controversial but is widely accepted now. The main tenets of this theory is that a stimulus which is capable of eliciting emotion when it is first seen gives rise to neural excitation which is conveyed through the autonomic nervous system to the endocrine and the visceral systems which give rise to bodily changes. And when the internal bodily changes occur they affect behavioural changes, which are perceived by the individual as emotions. What he meant to say was that internal bodily changes precede the feeling and experience of emotions and it is only these changes taking place in the internal physiognomy of the individual which are felt as emotions such as anger, love, hate, fear and the like. Thus James Lang's explanation rejected the previous contention that are perception of a emotionally charged stimuli would be felt as emotions which later would give rise to physiological and thereby behavioural changes.

The various attempts at explaining the dynamics of human emotions had been mostly indicative of physiological basis as a result of maturation. It is so, because mostly all intense emotions affect directly certain behavioural and physiological changes *e.g.* fear gives rise to such evident bodily changes as sweating, shivering, heightened blood-pressure, faster heart rate etc. (Physiological) and behavioural changes *i.e.* running away from the object of fear or attacking the object of fear in desperation which are involuntary acts (Behavioural).

The Beginning of Emotional Behaviour

A variety of opinion, some theoretical and others based on controlled experiments, exists regarding the earlier manifestation of emotional experiences. Those psychologists who believe in the maturational basis of emotional development stress that the infant is capable of emotional experiences at the time of birth, if not earlier. Freud[1], the famous theorist, wrote that even the foetus could have feelings though he recognised that the human infant "comes into the world more unfinished."

Rank[2] speaks of the 'birth trauma' and maintains that the new born infant experiences "anxieties". The "anxieties" he ascribes to the traumatic experience during birth of the child. Susan Issac[3] was of the opinion that though the newborn child lacks knowledge and understanding, it expressed and exhibited wants, fear, anger, love and hate since birth.

The most famous of all experiments on emotional responses of infants, is the classical experiment conducted by Watson when he presented various kinds of stimuli to neonates and recorded their reactions. He concluded that the new-borns exhibited three kinds of unlearnt emotional responses *i.e.* fear, rage and love. He postulated that the three fundamental and primary emotions are the basis on which varieties of emotional expressions in older children and adults are an out-growth. Further researches have not borne out Watson's contentions, but his work highlighted two important aspects, namely, his rigorous experimental approach to the study of emotions, and his rejection of the 'heredity theory' of emotion. He says all varieties of emotional experiences present in the adult are there in the child and are totally inherited.

Some Classical Experiments

Watson[1] and Sherman[5] carried out a study on 2 infants less than a week old, and took motion pictures of these infants in act of being dropped from a particular height; pricked by a needle, restraining physical movements and when hungry. The firm was projected to groups of nurses, medical and

psychology students. To a considerable extent there was agreement within the group regarding the identification of the emotions expressed by the child. Later Sherman interpolated parts of the film by cutting and rejoining in order to interchange the stimuli and responses which were again shown to the same group of observers. This time they were not able to identify the actual responses and there was marked inconsistency in their judgement of the emotional responses of the infants. He conducted another experiment in which he kept the babies hidden from the observers when stimuli of pricking, dropping and restraining the body movements were being applied. The observers were asked to identify the stimuli used to excite the babies when it was presented before them. They were not only unable to identify the different stimuli applied but their judgement of emotions showed a marked inconsistency.

These studies do indicate that specific and identifiable emotions that Watson talked about does not exist in the emotional responses of infants. In conclusion Sherman pointed out that "aimless activity of most of the musculature" occurs in infants irrespective of the stature of stimuli.

Irwin[6] in his study of the reactions of 24 infants under one month of age, in a situation assumed to produce fear *i.e.,* dropping the infants a distance of two feet before catching them, found the presence of "some movement" in 88 per cent of them, 46 per cent of the movements were of the arms, 3 per cent were of the legs' 25 per cent were of both arms and legs. No response was observed in 12 per cent of the cases.

Pratt, Nelson and Sun[7] studied 66 infants less than 3 weeks old with the intention to produce anger and identify the patterns of responses as indicated by Watson, by compressing their nostrils from 5 to 15 seconds to prevent breathing and then holding their arms aganist their body. A generalised reaction pattern was observed in the infants and no specific or distinct pattern of responses emerged.

Bridge's[8] classic work in the study of the origin of growth of emotional responses had helped clarify certain misconceptions and confusion regarding the same. Her study was an extensive and detailed investigation of infants ranging from birth to 2 years old babies and observations made were as follows:

(*i*) The new born infant responds with an undifferentiated and vague excitement to any kind of emotional situation.

(*ii*) Differentiation from the confused excitement takes place by the age of 3 months into responses of *distress* and *delight*—as a result of more maturation and learning. Distress is characterised by crying, gasping and muscular tension (follows an unpleasant situation). Pleasant situation is followed by delight.

(*iii*) The responses of distress further differentiates into anger, disgust and fear by 6 months of age.

(*iv*) A little later delight branches off into responses of elation and affection.

(*v*) Expression of jealousy appears from distress by about 18 months of age and a little earlier affection is shown first for children and later for adults.

(*vi*) Between 18 and 24 months of age the emotion joy becomes differentiated from elation and affection from the side of delight.

By giving the pattern of emotional development of children upto 24 months of age, Bridge does not suggest that further development stop at this stage. Studies have indicated that with advancement

in age *i.e.* with more exposure to learning situation and maturation, the varieties of emotional responses in life increases.

B. Nagaratna[9] has tried to represent the studies conducted by some investigators regarding first appearance of emotions like fear, anger, smiles, laughter in children. Some of the situations which result in these emotional responses are also mentioned by him. She helped in consolidating the findings of various researches conducted so far in the development of emotions from birth onwards.

Characteristics of Children's Emotions

Hurlock[10] has pointed out a few characteristics which distinguish the emotional response of children from that of adults. In the case of children the intensity of reaction to a relatively mild and critical situation is the same in the case of either "positive" or "negative" emotions, that is, irrespective of the magnitude of the stimuli the emotional outburst in children is always high. The emotional reaction of children is not in proportion to the intensity of the situation and from an adult's point of view they "overreact" to any stimuli however mild it may be.

With learning and acquiring of social values (social learning) there comes the understanding of emotional reactions that are not appropriate and the child learns to exercise control over the expression of emotions.

Secondly, a child's emotions are brief, transitory and short-lived. It is there as long as the pleasant or the unpleasant situation is affecting him, and may be for sometime more in both cases. But in adults and older children the emotional feelings are of a longer duration and affect their behaviour much after the situation is not present.

Thirdly, the frequency of emotional response is more in the case of children than in the case of adults. With age and further social development and learning the child learns through experience, the societal impact and tries to restrain frequent emotional expressions.

Again, children of the same age react in various and myriad ways to similar or the same situation, that is, their reactions are flexible. Advance in age, delimits the scope of emotional responses and becomes appropriate to the situation giving rise to it. Also with advancing age and social confirmity some emotions become weaker and some stronger.

The Role of Maturation and Learning

As discussed earlier, both maturation and learning determine the development of nearly all aspects of human behaviour. The growth and development of sensory processes, muscular activities, and also that of intellectual functions and affective states are influenced by 'maturation' as well as 'learning'. The most important factor is motivation. Because of their interrelated roles, it becomes extremely difficult in many situations, to study the influence of one to the exclusion of the other. Yet, attempts have been made to evaluate the role of each separately in understanding human development.

Maturation

Jones and Jones[11] experiment of presenting a harmless snake to a sample of children and adults showed that children under the age of two were not afraid of the snake. Between the age 3 and 3½ children showed some hesitation in approaching and touching it. Whereas the children of 4 years of age showed marked fear reaction like the adults. They describe their results on the basis of general

level of physical intellectual development and social learning.

Washburn[12] supports Jone's views with her observation of "social smile" of infants. Shaking responses were observed by him in infants of 8-20 weeks to any human face, whether familiar or strange which gave way to negative responses to strange faces in and around 20-40 weeks of age. After which, the child responds with smiles to any face. The ability to discriminate between strange and familiar objects was given the reason for this negative phase.

The role of maturation in the development of emotions is supported by the study of Galvanic Skin Responses (G. S. R.) by Jones[13]. After comparing the galvani reflexes of children and that of older children she found that maturation of neural mechanisms conducting impulses either to or from the viscer plays, a significant role in the alteration of emotional behaviour. The finding was that the G. S. R. was of a smaller magnitude and less easily excited in younger children as compared to the older ones. It was explained by her in terms of the existing relation between overt and visceral expression of emotion. In older children the emotional impulses flow more towards the viscera and increase the intensity of inner responses, as they tend to overt responses. The hightened discharge in the viscera is indicated by G. S. R. The maturational level of the concerned neural mechanism determines the covert and also the overt pattern of "infantile emotional" responses.

Gessel[14] observed the emotional responses of identical twins, and was convinced that both showed marked similarity in their emotional reactions to strange situations, social games, reaction to mirror image and gestures of refusing, avoiding, begging etc. Training and practice was imparted to one of the twins in a situation for about 46 weeks. Even after the training. Gessel did not observe any marked difference between the control and the experimental twin in their emotional responses to the situation used for training the experimental twins, indicating that the developed pattern of the control twin was due to maturation only.

Goodenough[15] after the experimental investigation of a 10-year-old deaf and blind girl, and subjecting her to different kinds of emotion arousing stimuli observed that the emotional expressions of the child was similar to that of a normal child and were not at all handicapped by her physical defects. He concluded that in many of the subjects overt emotional responses were unlearned.

Learning

The classical experiment of Pavlovian 'conditioned reflex, to a great extent demonstrates the effect of learning on the development of emotions. To an Extent even imitation and the effect of direct instruction has a bearing on emotional growth and modification of behaviour.

Pavlov[16] in his experiment demonstrates that a secondary stimulus could evoke the response natural to the primary stimulus, if both the primary and secondary stimuli are presented in combination a number of times. On the basis of the same principle Watson[4] conditioned emotional responses in children. A healthy 11 months old child who showed no fear to any stimuli, except the three primary ones *viz.*, loud noise, loss of support and organic pain was accustomed to play for long periods of time with white rats. At one instance a loud noise was sounded when the child was about to touch the rat and a marked reaction fear was noticed in the child. Later the child felt hesitant to touch the rat when it was produced again, and it withdraw his hands but no fear reaction was present after a week.

At a later stage, the excercise of the production of rat accompanied by loud noise was repeated many times, which produced intense "fear reaction" in the child. The production of the rat alone and without sound accompaniment elicited reaction of withdrawal and fear. Later it was found that the child felt afraid even if any furry object is produced in front of him and not necessarily the rat. Thus the fear that was conditioned by the rat extended to other similar objects. Watson had also proved experimentally that it is possible to remove, the fear conditioned to one object or situation by "dereconditioning". On the basis of the results obtained, he concluded that the principle of conditioning can account for a variety of complexity of emotional behaviour in humans. Later experiments and investigations carried out in the lines of Watson have yielded different results.

H.B. English[7] utilised a stuffed cat to induce fear reactions in a child of 7 months. Before conditioning the child had a positive response towards the cat. When the child reached for the stuffed toy the elder sister set up a loud and indignant howl. The child expressed fear and withdraw and at the same time refused having anything to do with the toy for the next two hours.

English holds the view that the fear responses conditioned in the normal and regular environment at home, were unlike the laboratory-induced conditioned reflexes and the former were not to be classified under the latter.

Social Learning and Development

As discussed earlier, experiments have indicated that though emotional states are present in the infants, some of the emotions are a result of social learning, given the needed maturational basis. When the stimuli acquire meanings for the child and is perceived as a threat or pleasantness the child emotionally reacts to it accordingly. The Pavlovian experiment and later psychologists working on conditioning amply indicated that if the stimuli did not directly affect the child no emotional reaction would be forthcoming. The furry object, which was otherwise harmless, as perceived by the child did not evoke fear responses in the child, not until this object was associated with a stimuli which was indeed capable of arousing shock and fear (*i.e.* loud sound). Obviously, in the process of growth, the child comes across many objects, which directly does not cause him discomfort or concern to arouse emotions. In the process of learning of social values some objects acquire meanings and the child relates to some of these day to day objects and perceives them as situations to which he should react emotionally.

As a result of social learning, the child learns to modify, delimit the intensity, the scope and the frequency of emotional expressions, to conform to the socio-cultural values in which he grows up, that is, from the gross reactions manifest in early childhood, the child comes to learn more 'refined' ways of emotional expressions. Sometimes, this restriction of frequency and intensity of emotional expression is carried too far to lead to repression of emotion which becomes pent up inside and need expressive release. If this release is consistenly denied it can lead to serious disturbances in personality and mental health. Moreover, the emotions felt by the child become more complex with further development and social learning, depending on the social economic and cultural milieu be grows up in, as the 'exposure' to social values and education are very different from one society to the other, differing from one social stratum to another.

If the child fails to conform to the social norms and values in his expression of emotions it leads

to maladjustments which could make him a misfit in that society. Children growing with emotional problems which, when unresolved, further render them maladjusted in the adult years.

The parental influences on the emotional development of children is also an extremely important factor. Issues like the socio-economic status of the parents, education and other such variables like child rearing practices, relationship between parents themselves and with the child, are the major determining factors of normal emotional development of the child. Juvenile delinquency, criminality, lack of drive, heightened frustrations and anxieties, withdrawals from reality etc. are some of the effects of emotional disturbances and experiences of early childhood due to faulty parent-child relationships and other variables as mentioned, which leave such tell-a-tale marks on the adult personality, rendering them maladjusted society, as has been amply highlighted by researches done in the West.

Researches have been conducted in the West in this regard to find out the extent of influence of the factors in the emotional content and expression of children. In India, there is an extreme paucity or research directly related to emotional development.

Some researches with a base on social development can be cited indirectly, as considerable extent depends upon normal emotional development of children. They are as follows: Murlidharan[18] (1969) found that children from large size families *i.e.* family units consisting of three children showed significantly less of problem behaviour than the children from the families who have one or two children. The sample consisted of subjects in the age group of 3 to 8 years and some of behaviour problems studied were, delinquency, unsocial behaviour, aggressiveness etc. which are also related to abnormal emotional development. Kakkar's study[19] (1970) attempted to explore the role of "family conflict" in the development of the child. Using a questionnaire he measured the extent of interparental conflict related to child-rearing problems and scholastic achievement.

Faizunisa and Parameshwaran[20] (1965 & 1968) found a relationship between maternal behaviour and behaviour problems of children, possibly due to emotional disturbances. Prasad and Prasad[21] (1975) on their study on pre-school children of working mothers found sex differences in the behaviour. They compared the behaviour of pre-school children or employed mothers with non-school going children of non-employed mothers in specially created play situations. The authors concluded that pre-school education did not seem to affect adversely the personality of the child in terms of anxiety and nervousness etc. While examining the effects of mother's working status on children it was found that whereas male children in the working group was socially more participative and emotionally mature than the male children of non-working group, they tended to have higher scores on nervous habits and the girls more anxious.

There are many such studies conducted but the size of sample selected to such studies locally and purposively do not lend children to generalisations. In conclusion, it can be said that emotional development of children is one of the most complicated processes and it depends as much upon the physiological maturation of the endocrine system, the neural system, the visceral system and the autonomic nervous system as on the learning and environmental factors.

This aspects of development is one of the most important in the sense that its normal development would lead to well-adjusted personalities whereas abnormalities in its development could have far reaching consequences from maladjustments to acute psycho-social pathology.

A wide variety of factors in the environment in which a child grows, influences his growth of emotions and their expressions. Parental influence which is maximum in childhood is the most crucial of all factors which helps normal emotional development. In fact, the major causes of later emotional maladjustments can be traced back to a unhappy childhood, broken home, parental conflicts and such other factors.

Anxieties, phobias, depression, nervousness, insecurity, aggressiveness are but a few of all factors which are an outcome of such situations—which leave tell-a tale marks on the adult personality. Also as the child emotionally develops with the process of conditioning and de-conditioning in his natural environment, wrong associations of stimuli with emotions could lead to emotional disturbances and affected adulthood.

Thus, leaving aside factors of heredity and maturational growth (on which man has lesser control) the environmental factors could be controlled and manipulated to offer conducive surroundings for the optional emotional development and adjustments of the child. The provision to the child a happy home, optional exposure and a good learning environment in school and society for social learning would lead to normal emotional development and expressions.

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26
Emotions and Motivation

Emotions and feelings play a great role during infancy and childhood and an individual's emotional development has a profound influence on his effectiveness and happiness as a person. Emotions are both constructive and destructive. Excessive emotion disrupts actions; it also leads to destructive actions; it makes a person restless and acutely uncomfortable. But emotions also give zest to life. One of the aims of child-rearing is to produce individuals who can meet the pain, sorrow and frustration that are inescapable in life without being overwhelmed by them and who can appreciate all the joys that life can offer. Proper emotional development prepares the individual to appreciate the pleasurable aspects of emotion and to cope with unpleasantness in a constructive manner. The well-developed personality should be expressive and emotionally responsive in a disciplined manner.

1. Emotions

Long ago Bridges (1932) observed children from birth to over two years of age and showed how at birth there is general excitement and by about three months they show definite signs of distress on the one hand and delight on the other.

Developments of Emotions

By six months the distress develops into the emotions of fear, disgust and anger. By 12 months delight differentiates itself to elation and affection. By 18 months the child is able to show affection for children; but around this age jealousy also develops. The last emotional feeling to differentiate itself is joy, around 24 months. Thus by the end of the second year the child is fully equipped with various emotions and feelings and is ready for the further growth during the pre-school period. As noted above from the third to about the sixth year the child goes through the critical period of what *Freud has identified as the Oedipus complex*; after its resolution, the boy identifies himself with the father and develops masculine behaviour, and the girl identifies herself with the mother and develops feminine behaviour.

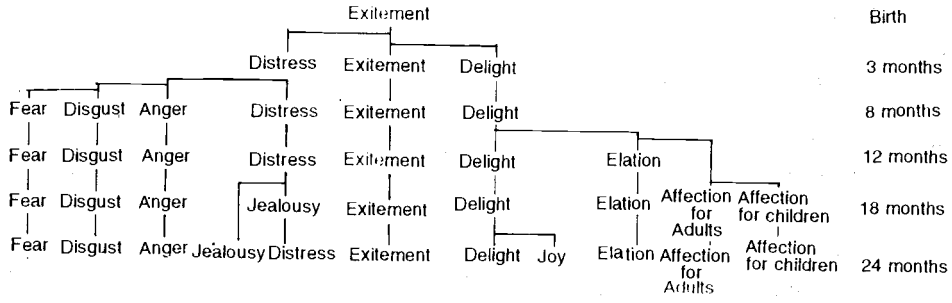

Fig. 26.1. Differentiation of Emotion during the first two years. (Bridges, 1932)

Physiological Factors

It is known that the thalamus situated at the base of the brain is an important centre responsible for emotional behaviour. With growth, the cortical control, especially in the frontal lobes, is established so that emotional behaviour is under the control of the individual. It is found that the patient, after frontal lobotomy when he is rendered operatively partly decorticate, shows excessive reactions to external stimuli. His responses are, however, of short duration; but there is rapid alternation from one emotional state to another; he is less inhibited than the normal adult; he becomes childish in his emotional responses. Similar changes occur in person with brain damage following an accident or disease, especially when frontal lobes are involved. All these clearly show that the cortex, particularly the frontal lobes, impose control on the gross emotional reactions mediated by the thalamus. At birth much of the cortex, particularly the frontal lobes, is still immature and has little influence on the functions of the lower parts of the brain. This is why the child shows unregulated emotional reactions similar to those of the animals which even in mature stage have a relatively meagre cortex.

The characteristic feature of the emotional responses of the child is that emotions are quickly aroused but they are also short-lived. Such features of emotional behaviour arise out of lack of cortical control. Another significant aspect is that during infancy and childhood the endocrine glands, like the adrenal glands, the pituitary gland, etc., do not secrete and throw in enough endocrine products (Bousfield and Orbison, 1952). This is why the emotions of the child are short-lived. After the child is two years old the adrenal glands gain in weight up to about the age of five; from five to eleven they increase less rapidly; and from eleven till about twenty years there is another spurt and they increase rapidly. Long ago Cannon (1929) showed the role of adrenaline (the secretion from the adrenal medulla) in emotion. The liberation of adrenaline into the blood stream increases the vigor of emotional response and prolongs the emotional state. This is why the child becomes highly emotional during the pre-school period, about three to six years. The relatively small adrenal medulla earlier accounts for the transitory nature of the child's emotional responses during the first two years.

Another part of adrenal gland, the cortex, and its secretions, the adrenocorticotropic harmone (ACT), is very little until the ninth or tenth year of life. The output of this harmone increases thereafter, particularly during the stress periods. This is a further physiological reason why the children differ from adults in their stress reactions.

Thus, the emotional behaviour depends on the maturation, both in the nervous system and in the endocrine system. The differences in emotional responsiveness between children and adults appear to be partly caused by cortical immaturity of the child and partly due to differences in the endocrine output.

Some Specific Emotions

Emotional responses have been discussed so far only in general terms. Now an attempt may be made to describe briefly some of the studies regarding such specific emotions like fear, anger, jealousy, etc.

Fear. Both maturation and learning contribute to the development of fears. For example, children below the age of four have little fear of snakes. This shows that sensory structures have to mature before children become sensitive to dangers arising out of objects they are not accustomed to. There is also the fact that they learn to fear objects either through imitation or through conditioning. (Jones and Jones, 1928).

As regards the characteristics of fear stimuli, one important characteristic is suddenness or abruptness. Another characteristic is unexpectedness. Thus, it is not the nature of the stimulus that causes fear but how it occurs. For example, pre-school children exhibit no fear of such objects like stuffed animals or furry creatures. But when these objects appear before them suddenly or unexpectedly, they become frightened. Another feature is novelty or unfamiliarity.

In the first two years of life children are afraid of noises and the objects or persons associated with noises; other stimuli are painful shocks, falling, loss of support and elevated positions—all concrete situations. These fears decline after the age of two years and practically disappear by middle childhood, after six years of age. As their intellectual abilities, particularly their imagination, develop, children begin to anticipate the future. From fourth year onwards fear of darkness, loneliness, imaginery creatures, robbers, dreams, death, etc., increase greatly. Thus, the pre-school years are characterised by a decrease of fears of concrete nature and an increase of imaginative fears. This fear of imaginary events goes on increasing during the middle years also (Jersild). According to Wake (1950) the principal fears of adolescent boys are of a social nature; fear of exclusion from social gatherings, fear of performing in front of a group, of being ridiculed, etc. According to Jersild, fear of the concrete decreases from about 84 per cent in children below eight to about 45 per cent in children below twelve while the imaginary fears increase from about eleven percent before eight years to about 52 per cent in children below twelve. Fear of personal inadequacies increases from about five per cent below twelve to about thirty per cent in adolescents between eleven and sixteen.

Nagaratna (1938) studied children aged ten months to 66 months and recorded occurrences of fear, anger, laughter from the parents. She found that fear-producing situations were loss of balance, unexpected noises, punishment etc. Fear of loss of balance, unexpected noise, fear of strangers decreased with age. Fear of insects and animals, of punishment, of darkness and of being left alone increased in frequency with increase in age.

Verma (1957) studied the objects and situations that arouse fear in children eight to ten years old studying in primary schools. These were fears about reptiles, death, supernatural things, losing objects and possible injury.

Anxiety. Like fear, anxiety is also aroused by some danger to oneself. However, while in fear there is a clearly perceived cause, anxiety is an uneasiness caused by something which the individual is not able to define objectively. Something is threatening a person but he is not certain what it is. The emotional reaction also tends to be vague or diffused. Fear is a response to a specific environmental danger; anxiety is a reaction to pervasive threat to the individual's sense of security.

The child who is having anxiety avoids a large number of situations and experiences, as though they are of potential danger. As a result, his experience becomes restricted; he retreats from the world; his conduct becomes rigid and stereotyped. Or, he may show "flight" reactions; he may become restless and uneasy. The net result of anxiety is that he is unable to attend to the task on hand and his interpersonal relations become disrupted. Anxiety may lead to day dreams or nightmares. Or, it may lead to overaggressive behaviour or to rebelliousness.

Because anxiety depends upon the ability to imagine something not present, it develops later than fear. The child who is worried or anxious may keep his concerns to himself, brooding over them or he may turn outward; he may seek attention and sympathy or he may blame others for his troubles in order to free himself from the feelings of inadequacy or insecurity. As Jersild has said: "One of the marks of an anxious person is that he tends to overdo or underdo. A slight affront or criticism may send him to a rage or he may have what seems like an excess of calm when there is really something to get emotional about, as though he was under duress to put a tight lid on his feelings." Thus, anxiety is primarily an evidence of lack of adjustment.

Many adolescents develop anxiety about their future. They are eager to enter an occupational field which will enable them to fulfil their ambitions. But with so much of unemployment all around today, it is not a surprise that they are anxious about the possibility of getting a job. This anxious state may cause them to become aggressive or it may lead them to worry about their future. In either case they are unable to do anything constructive about the situation; they are ready to participate in agitations, protest marches and in riots.

Anger. As noted above, according to Bridges (1932), anger differentiates from distress around the sixth month. Here also both maturation and learning are involved. Restraint of bodily movements, interference with the child's activities and frustrations give rise to anger. During the first two years of life anger occurs more frequently than other emotions because of the many interferences with its activities and the many restraints imposed on it. Further, infants learn very quickly that anger is a useful attention-getting device and that it often procures what is otherwise denied. Goodenough (1931) reported that anger outbursts are more frequent among children in poor health. Jones, who studied children aged 16 months to three years, found that having to sit on the toilet chair, being deprived of property, having the face washed, being left alone and the adult leaving the room, are the most frequent causes of anger. Physical disturbance such as opposition to daily routine, physical discomforts, interruption of ongoing activities, appear to be the most frequent anger-provoking situations.

As the child grows, the physical factors continue to operate, but social factors such as interference

by older persons or playmates predominate. During adolescence the anger-provoking situations become primarily social; the importance of physical situations decreases. Studies show that in teenagers anger is aroused frequently as a result of impositions by siblings or others, bossiness, unfair treatment, sarcasm, etc. Anger is more readily aroused by people than by things. (Hicks and Hayes, 1938).

As the child becomes older, anger reactions become more verbal. Blatz and others (1937) in their study of anger reactions of children from 6 to 16 years found that timidity decreases and fighting increases during the first year at school. Fighting loses ground as a method of expressing anger between the ages of 7 and 11 and disappears entirely by mid-adolescence, that is, between 15 and 16 years. Sulkiness and impertinence replace fighting reaction. There are more attempts to hurt the feelings rather than to injure the body of the offender. Thus causing bodily harm is a sign of emotional immaturity.

During childhood, the anger responses are brief and last less than five minutes; nor are there any after-effects; cheerful attitude prevails. As age increases and as overt responses are replaced by sulking, resentment, etc., the duration of anger is extended, and unpleasant after-effects appear; irritability is the most common after effect.

As regards anger, Nagaratna (1939) found that frustration of play activities, desire for food and thwarting self-expression were the most important causes. Anger outbursts arising out of frustration of desire for food were more frequent at lower age levels and anger responses due to thwarting of self-assertion, curiosity and display were more frequent at higher age levels.

Crying. Hunger and colic are the most common causes of crying in the first three months of life. Other causes are bright lights, sharp noises, uncomfortable positions, inability to move due to restrictive clothes or covers, fear, withdrawal of contacts with others.

By the time the infant is three months old he has learned that crying can bring attention; he learns to use crying as a means to an end. (McCarthy, 1954).

Among the nursery school children, crying is predominantly social. They cry at home because of conflicts with adults or with siblings; in nursery school they cry when other children attack them or their property or when there is accidental injury. (Landreth, 1958).

Lack of security in interpersonal relationships predisposes the child to excessive crying. Feelings of security can be greatly increased if prompt attention is given to the child's needs. (Gesell, 1954).

Later, after the child learns to speak, crying is looked upon by parents as a sign of being 'spoiled.' They may scold or punish him. The child thus discovers that crying is "babyish." (Landreth, 1958).

Excessive crying is physically and also psychologically damaging. The child becomes exhausted. It may lead to enuresis, thumb-sucking or nail-biting (Stewart *et.al.* 1954). The parents may ignore the child who is given to excessive crying. This leads to feelings of insecurity and helplessness in the child. There is no doubt that the child given to less crying has better relationships with parents and others; he will be better adjusted to his environment. Social rejection of the child given to excessive crying is damaging to his self-concept and leads to feelings of inadequacy.

Because of the consequences, excessive and prolonged crying should be eliminated as early as possible. The child should not form a habit of crying. It the habit is formed the child has to unlearn it

and replace it by other methods of expression which are more mature and socially acceptable. He must be taught to get what he wants by speaking rather than by crying. Normally the child should abandon crying by four or five years, if he has not done so earlier.

Jealousy and envy. Both these involve social situations; so they cannot appear until the child begins to recognise threats to his security and obstructions to his wishes. Jealousy is directed against persons. Envy is directed against the possessions of others. Jealousy is common during early childhood when the child wants undivided attention of his parents; it is generally directed against the siblings. It becomes less frequent during middle childhood when the child becomes a member of the peer group. It increases in frequency during late adolescence when he desires the attention of one person. Thus jealousy involves a sense of insecurity.

During early childhood years jealousy expresses itself in physical attack on the person the child is jealous of and by regression to earlier modes of reaction to attract attention. During adolescence it follows the verbal pattern exhibited in anger, disparaging the rival, sarcasm, ridicule, etc.

As regards envy, during early childhood, it is expressed overtly; taking away the toys etc., belonging to the other child. During school years it is at a minimum; there is more curiosity about what the other person possesses rather than envy.

Pleasant emotions. In Bridges's scheme, delight differentiates itself into elation and affection when the child is one year old and joy appears at the age of two years. While the child avoids the unpleasant emotions life fear and anger, he seeks to perpetuate the pleasant emotions of affection, joy etc. One important factor leading to pleasant emotions is the sense of general well-being; when their is good health, nourishment and satisfaction of the various bodily needs there is pleasure. The young children derive pleasure from noisy and boisterous play and from pulling things apart. In late childhood pleasure arises from excelling in feats of skill and strength. Adolescents derive pleasure from social activities such as group games and also from music, literature and other arts.

Affection is directed to persons or animals and even to objects such as toys. As the child grows older affection is primarily directed to persons, particularly the family members and relatives. There are also changes in expressions of affection. The young children are quite spontaneous and uncontrolled in the expression of affection; there is a good deal of fondling and kissing. With increasing age such overt demonstrations are inhibited. During adolescence he becomes extremely shy of such demonstration.

Emotional Control

During infancy and early childhood, emotions tend to be heightened; they lack control. The angry child indulges in random, diffuse and meaningless behaviour. The redeeming feature is that the emotions at this age are brief and transitory. Although, early in life, such emotional outbursts are tolerated, the adults disapprove such behaviour in the child as he grows up; the child soon learns that he is incurring the displeasure of his parents when he indulges in such outbursts. When he goes outside the home he learns that he cannot act out his emotions. He learns to control his fear, anger, jealousy, joy etc. He learns that free expression of emotions are looked upon at home and outside as "childish". The attitudes of significant people in the child's life provide the necessary motivation to control his emotions. Through trial and error he learns which forms of hostile expression are tolerated by others and which forms will lead to punishment or social disapproval. Another factor which helps him to control his emotion is

imitation. If the other children of his age fight when they are angry, he will also fight. Direct teaching may be employed; the child may be told by the parents or teachers how much emotional expression will be tolerated; such training must be specific; it will have no value if it is general.

The physical and glandular changes in the body in the emotional state provide energy for action. So mere control of emotion may lead to unhealthy "bottling up", the energy aroused must be channeled into other activities which are more constructive. Otherwise, the child may become moody; he will be gloomy and sullen; he may be listless and work below his capacity. Or there may be displacement; he may express his emotion on another person or object. Studies of children's behaviour in doll play show that the child, whose anger has been checked by the parents, will show aggressiveness to her doll. Another way of dealing with the forbidden emotion is by regressive behaviour, by going back to earlier forms of behaviour. The jealous child may resort to bed-wetting; he may try to seek attention by pretending to be ill; or he may develop fears for objects of which he was never afraid before.

An emotional explosion may help the child to get relief by expression, but it will lead to social disapproval; so it will not give satisfaction to the child.

The child must learn not only to control his response in a constructive way, he must also learn how to handle the stimuli and the situation that gave rise to emotional behaviour in him. The child must learn both these, to deal with the response and also to deal with the stimulus situation. This is possible when he makes changes in his self-concept. This will promote the attainment of emotional maturity. Engaging in strenuous physical exercise will help in this; it channelises the excess energy.

2. Motivation

The concept of motivation is used to explain three factors of behaviour, namely, the instigation of a response, its energisation and its direction. At first the physiological drive and the attempts by the child to reduce them are very important. Later curiosity becomes quite powerful to instigate action. The response initiated by the internal drives becomes more vigorous as the stimulation becomes stronger. The direction of the response is to reduce the drive, namely, drive-reduction.

Primary drives. A primary drive is unlearned; it is characterised by increased activity following deprivation. If the infant is not fed for several hours he becomes increasingly restless. When the child is given milk he becomes quiet.

The primary drives are hunger, thirst, rest and sleep, elimination, breathing, activity and sensory stimulation. Sex becomes a drive later on.

The term "need" refers to general or specific conditions of lack or deficiency within the organism. The existence of a need provides the organism with the energy for goal-seeking behaviour directed toward reducing the lack or deficiency. Thus needs describe the general sources of motivation. When the need is reduced there is satisfaction.

Secondary drives. While the primary drives are unlearned, the secondary drives are learned. Various learning factors are assumed to explain the effects or secondary drives. In contrast to physiological needs these are social needs or psychological needs.

Maslow (1954) proposed a hierarchical set of five basic needs: (1) physiological, (2) safety, (3)

love and belogingness, (4) self-esteem, and (5) self-actualisation. The higher needs can be satisfied only after the lower needs are satisfied. The physiological needs are hunger, thirst etc. The safety needs are centred around the requirements of a predictable and orderly world. If the safety needs are not satisfied, the individual feels mistrust and has a sense of insecurity. When the child has this sense of security and trust in people and the world, he develops affectionate relationships with other people and to belong to a wider group than the family. He desires warm and friendly relationships. He is now able to function well in interpersonal situations. The fourth level in the hierarchy constitutes the esteem needs, the desire for achievement and competence, for independence and freedom, for reputation and prestige. Finally, appears the need for self-actualisation. According to Maslow this is the highest level of motivational organisation. It refers to a man's desire for self-fulfilment, to realise his potentialities. One of the characteristics of such a person is acceptance of himself; another is spontaneity in both behaviour and his inner life; he is problem-centred and not egocentric like the insecure person, nor he is after seeking credit and social approval from others.

Curiosity and Cognitive Change

The infant develops from a simple sensory-motor creature capable of associating only concrete events and motor actions to a person who is capable of concept-formation, thinking and problem-solving using symbols. The grown up person is neither dependent on the stimulus nor on the drives. There is also the cognitive organisation based on complicated motivation. Harlow (1953) assumes curiosity as a basic drive which leads to cognitive organisation. The child is impelled by curiosity to approach and investigate his environment. Opposed to this motivational concept of curiosity are the associationistic theories of cognitive change. Skinner (1938) believes that all behaviour is controlled by variations in the reinforcement contingencies of external events.

Miller (1956) showed a set of random dots for a short duration and the subjects are asked to guess the number of dots; children as well as adults can correctly estimate up to six dots. When the dots are more in number there is first overestimation and later, with further increase of the number of dots, there is underestimation. This shows that the child has a limited capacity to process the information. However, in the world around us, particularly in an industrial society, there is a constant stream of events which the child as well as the adult have to process. He has to develop rules to simplify the events so that he can understand them. This is achieved by grouping and labelling. Grouping is a simple example of the development of rules. This process may be seen in the development of reading in which letters are grouped into words, words into sentences and sentences into units of thought. Rapid reading is possible when there is development in this grouping process.

This interest in new or more complex groups is the basis for curiosity. Animal studies show that rats actually cross an electrified grid and run a maze to reach the goal box; monkeys learn and will work for a peep at a toy train. Thus, novelty by itself is rewarding even at the animal level. Similarly manipulation is also rewarding. Harlow (1950) found the monkeys dissembling a simple mechanical puzzle just for the sake of the activity. Walker (1956) found that the young chimpanzees engaged themselves at playful manipulation of objects; however, this activity tended to decline in frequency as the novelty wore off. Berlyne (1960) found a similar behaviour in five-year-old children. One of the characteristic features of child behaviour as well as of adult behaviour is to seek stimulation.

The task of the parents and teachers is to provide the growing child and the teenager with situations which are both stimulating and promoting self-actualisation.

Achievement Motivation

It was shown that achievement motivation involves a concern for excellence and helps in the economic progress of the individual as well as the society or the country in which he lives. It has also been seen that this is a motive engendered in the child by the child-rearing practices.

Motivational development. What is the influence of child-rearing practices and educational practices in the generation of motives in children? One of the main points in Allport's theory of personality is that motives which are at first involved in the satisfaction of basic needs, become later on functionally autonomous. The problem for the person interested in development is how to help the child and the youth to acquire such functionally autonomous motives. However, Allport does not give any detailed account of how functional autonomy arises and operates.

Another approach to the problem is by Maslow as has been noted earlier. Like Allport, he also says that in childhood all basic drives must be satisfied so that the child is free to adopt more evolved growth motives, particularly the highest level motive of self-actualisation. He shows how the neurotic is bound to the lower needs of personality and the more infantile motives. Persons at the self-actualisation level of motivational development are spontaneous; their behaviour is expressive.

Gourevitch and Feffer (1962) distinguish four stages in the development of motivation, each characterised by its own type of reinforcement. In the first stage, reinforcement is concrete and bodily; it is direct gratification of a physiological need state. In the second stage, reinforcement is concrete but external, involving tangible rewards such as prizes or intangible rewards like affection or belongingness to a group. The third level involves abstract but external reinforcement like esteem of others, being well thought of by others etc. The final level involves active concern for self-actualisation, reinforced by abstract and internal reinforcers, such as self-respect.

It may be assumed that self-actualisation evolves from the curiosity or manipulatory drives and the motivation for excellence. Apparently it is not a deficiency drive based on need reduction. Also, it does not lead to behaviour that is useful in so far as immediate gratification of basic needs are concerned. However, the curiosity drive in man impels him to the exploration of the environment and acquisition of information that is useful in technological progress. This manipulatory or curiosity drive appears only when the more basic drives are reasonably satisfied. The deprived child has inhibited curiosity and lacks the motivational system to go up to the higher levels. On the other hand, stimulation and enrichment of environment facilitates exploration and influences later learning. Maslow has called these motives "abundancy motives" in contrast of the "deficiency motives."

Consequences of Deprivation

Bowlby (1953) reviewed a number of studies of children brought up in orphanages, and found that a number of dire consequences, followed by deprivation of affectionate mother-child relationship. These children failed to show normal affectionate relationships with other people and lacked a sense of shame or personal responsibility.

Sodak (1966) followed up two groups of institutionalised children from early childhood to adult

life. One group remained in the orphanage. The other group from the same orphanage were sent to foster homes before their third birthday. Almost immediately improvement in intellectual status followed foster home placement, while the institutionalised group showed a decline. These differences were maintained in adult life.

Thus, affectionate relationship even in a foster home helped the children to develop normally, while those who remained in the orphanage with lack of such affectional relationships deteriorated intellectually and emotionally.

There are three main theoretical approaches to the study of deprivations. Spitz (1945) explains in terms of separation from the mother and the emotional changes consequent upon it. Dennis (1957) explains them in terms of restricted learning opportunities leading to cognitive deficiencies. Provence and Lipton (1962) give what is essentially a motivational explanation involving incomplete use of potentialities available to the child.

Thus, emotional development as well as motivational development depend upon affectionate mother-child relationship.

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27
Moral Development

Morals and Society

Moral behaviour means conformity with the moral code of the social group, the word moral coming from the Latin *mores* meaning manners or customs. True morality entails not only *an understanding* of *the external forces* on one to behave according to the group's wishes but also a *voluntary wish* to behave in this way. It is accomplished by a feeling of personal responsibility and involves putting the interests of others before oneself.

There are, therefore, four components to the concept:

1. *Conformity to social standards*, learning and laws, customs and rules of the group.

The *laws* of group indicate those mores sufficiently important and clear-cut to have penalties attached.

Customs are equally binding mores which have no fixed penalties. For example, it is against the law to steal others' possessions; it is contrary to custom to handle them.

Rules are mores than are particular to a family, a club or any small subgroup.

2. *The role of the conscience.* The conscience, defined by some as 'a conditioned anxiety response', acts as a mechanism for ensuring internal control.
3. *The role of emotions*, especially guilt and shame. Children who feel guilty acknowledge that their behaviour has fallen short of the standards they have set themselves. Before guilt can be experienced four conditions must exist:

Children must acknowledge notions of good and bad.

They must accept an obligation to regulate their own behaviour.

They must accept that they, not others, are to blame for lapses in behaviour.

They must be able to recognise a discrepancy between themselves as they would like to be and themselves as they are.

Shame is an unpleasant emotional reaction arising from an awareness of disapproval in others; it thus relies on external sanctions alone, unlike guilt which relies on internal and external factors.

4. *The role of social interactions.* Contact with others—an obviously essential part of moral development—follows a pattern similar to that of social development in general: first and family in all-important, then the peer group and school and so on.

The Development of a Moral Sense

Children are born immoral or nonmoral—that is, they are not expected to have a conscience or to behave in a prosocial way. The earliest customs and rules they learn are usually to do with safety, followed by those concerned with politeness. By school age most are expected to have some concept of right or wrong, but few teachers of five-year-olds expect self-motivated social behaviour. Gradually the voluntary component develops until late adolescence by when more of less adult standards are at least expected if not always anticipated.

Summarising work done in the field, *Philip Graham*, writing in 1980, noted the following:

1. There is no clear-cut *sex effect* in the development of prosocial behaviour. Girls may have a greater tendency towards altruism but are less likely to display this trait because they are generally less assertive.
2. *Intelligence* and high levels of achievement are related to both helpfulness and honesty.
3. *Social class* is not consistently related to any aspect of moral development. This one of the very few areas where this is so.
4. *Maternal warmth* and good early experiences are associated with moral development. It is possible that these lead to high self-esteem and thus link with point 2 above on levels of achievement.

Theories of Moral Development

It was noted that no one theory of child development can be seen to explain all observed phenomena; so it is with moral development where three main approaches have addressed themselves to the subject. All three have made valuable contributions, yet none has so far provided a totally satisfactory conceptualisation.

Psychoanalytic theories can be seen to stem from Freud's original views put forward in his introduction to the concept of *narcissism.* The superego is the result of repressed hostility towards a frustrating parent: when the child feels that he has done something that the parent would disapprove of he is punished by a kind of internalised parent whose rules are adopted by the child. In Freud's original formulation the most strongly felt hostility was directed at the same-sex parent, thus that parent's attitudes became incorporated into the child's system. Since hostility is experienced at its most intense around the ages of 5-6, this is the crucial period for the development of the conscience, for it is at this time that the child wishes most to identify with the same-sex parent in order to cope with hostile feelings.

Neo-Freudians have modified this view. *Ian Suttie* turns the whole topic around and sees a mother-child love relationship as the basis for the development of conscience. To him the child identifies with what mother would approve of rather than fearing what the same-sex parent would forbid. *Melanie Klein,* on the other hand, dated the onset of conscience at a much earlier age. She saw it as arising in

the first year of life as a result of the infant's destructive fantasies. These fantasies are so worrying that a caring response emerges as a way of making reparation for them.

Cognitive developmental theories began with Piaget's *The Moral Judgement of the Child*, published in 1932. His approach to the development of moral judgement was consistent with that used for cognition in general—that is, children pass through certain clearly defined, invariant stages of moral thought. (Note that Piaget wrote about the child's judgement; only in passing did he study moral behaviour.) Piaget based his conclusions on observations of play, on questions about the rules of play and on questions to children about stories he had told them. An example of the latter is the story of a child who cuts himself while sharpening a pencil using a knife he has been forbidden to touch. Children were asked whether the child in the story would have had this accident had the use of the knife not been forbidden, i.e. is there an unavoidable retribution for doing something forbidden by an adult? At six years, 86 per cent of children had the concept of unavoidable retribution, or 'immanent justice', whereas by 11-12 years only 34 per cent held this view. There is a similar age-related development of the just punishment. Younger children see punishment related to the extent of damage incurred; the older take intention or carelessness into account.

Piaget's conclusions were that before the *age* of about seven thought is egocentric and only after that does the concept of shared rules emerge. At this age rules are being based on powers outside the child. Later the child comes to understand that he too has a part to play in rule-making, as he realises that relationships with others are essentially reciprocal.

The person who has more than any other developed Piaget's views, using the same story-telling technique, is *Lawrence Kohlberg,* who has extended the age range of subject to include young adults. An example of Kholberg's stories for adults is one in which a man's wife is seriously ill. A local chemist has the drug that will save her life but is asking more than the man can afford. The question put to the listener is whether or not the man should steal the drug.

Kohlberg formulated three levels of moral judgement:

1. Pre-moral, when behaviour is governed by thoughts of rewards and punishments.
2. The morality of *conventional rule conformity* is that determined by thoughts of the approval or disapproval of others.
3. The morality of *self-accepted moral principles* emerges with notions of contact with others and a democratically determined set of rules.

Finally comes a stage which transcends laws, when *self-determined individual principles* are the determining factor.

The Piagetian approach to a study of moral development has been criticised on similar grounds to those concerning cognitive development generally. Children's responses have been shown to vary according to the content of the story: it seems to make a difference whether one is asking the child to judge refusal to share or a theft. There have been some examples of regressions rather than smooth stage-by-stage progress towards reciprocity and it is clear that this particular theoretical formulation does not explain all expressions of moral behaviour.

Learning theory, at first glance, seems to offer the most attractive explanation for moral behaviour.

Both classical and operant conditioning models have been invoked to demonstrate the way that rewards and punishments mould behaviour to become socially acceptable. Through experience of being rewarded for certain acts, or the expression of certain thoughts, the child builds up a repertoire of behaviours which he associates with pleasant or unpleasant consequences. Hans Eysenck has offered another dimension to the debate by suggesting that introverts condition more quickly than extraverts and so learn more readily to be well behaved. The introvert-extravert dichotomy is biologically based, according to Eysenck, and so moral behaviour is determined indirectly and in part by our genes.

M.L. Hoffman has drawn on cognitive and psychoanalytic and learning theories, postulating that moral behaviour is a result of the person's *gradually increasing capacity to take the role of the other, i.e.* to recognise that others have a point of view and certain rights. He develops this theory mainly to explain altruistic behaviour and from it one can detect the following stages:

1. By the end of the first year of life an infant may display *sympathetic distress, i.e.* he feels concern for another but his lack of role-taking ability prevents him from doing anything about it.
2. Between two and three years role-taking has developed sufficiently to allow the child to take some steps to aid someone else who is manifestly upset.
3. Between six and nine years the child can role-take more widely, and can appreciate general rather than immediately obvious distress.
4. In adolescence there may be some sense of guilt at others' sadness, even if there is no question of personal responsibility.

The Measurement of Moral Behaviour

So far an emphasis has been put on finding out what people think is right or wrong rather than asking what they actually do. Much of the work in this field has consisted of the collection of data based on observations of behaviour, although since many of the experimental studies have used simulated settings it might be argued that we are still some way from being able to make general statements about the relationship between what people say and what they do.

Prosocial behaviour, generosity, helpfulness and altruism have been studied by giving children an opportunity to behave prosocially when ostensibly being observed doing something else. Thus in one experiment children won tokens which could be exchanged for sweets. The experimenters then gave the children an opportunity to give their tokens to a charity. Other techniques have involved observing children, for example, in a nursery school when even two-year-olds can be seen to be helpful to others.

Antisocial behaviour is harder to define than prosocial since one has to look at it by definition within a social context and this implies a greater degree of value judgement on the part of the observer: what is antisocial in one group may be acceptable in another. A group of children may, for example, see nothing wrong in lying to adults but everything wrong in not telling the truth to their peers. The earliest large-scale enquiry into lying and cheating in a laboratory-based study was by *H. Hartshorne and M. May* in 1928. They investigated several thousand children aged eight to 16 in a range of simulated settings. Other later studies have built in opportunities for children to cheat during tests or games.

Moral Development and Discipline

'Speak roughly to your little boy
And beat him when he sneezes.
He only does it to annoy
Because he knows it teases.'

Lewis Caroll's lines may have been intended an humour but there is more than a touch of the nineteenth-century attitude to discipline in this verse: boys in particular had to be beaten into morality, and discipline was synonymous with punishment.

Today discipline, at least as defined in textbooks, is related to notions of the disciple or follower: the goal is to produce one who will voluntarily follow leadership. As Benjamin Spock has pointed out: 'Some people believe there are only two ways to raise children: with overpermissiveness which produces brats, or with sternness and punishment which makes good citizens. Neither of these extremes works well.'

Elizabeth Hurlock has identified *five needs of childhood* which are fulfilled by discipline:

1. A feeling of security is imparted to the child.
2. Enabling children to live according to the mores of their group brings them social approval.
3. Through discipline children learn to behave in a way that leads to praise.
4. Developmentally appropriate discipline (that is, discipline suited to that particular child) encourages children to achieve.
5. Discipline helps children develop a conscience and thus to regulate their own behaviour.

Punishment fulfils three functions is childhood: the first is to restrict, the second is to teach and the third is to instil some motivation to avoid socially disapproved behaviour.

The principle behind the use of punishment is based on learning theory: associate an unpleasant experience with a certain act and it is less likely that the act will be repeated. A good example of inevitable punishment comes from a burn got when a hot object is touched.

So far so good. Unfortunately much punishment manifestly does not have the desired effect. There are several reasons for this.

1. The unpleasant experience may come too late after the act in question. To slap a child the second he steps off the kerb when told not to is one thing; to say 'Wait till your dad comes home' is another.
2. The unpleasant experience may become associated with the punisher rather than the act.
3. The unpleasant experience may confer status on the recipient.
4. Any attention may be seen by a child as better than none.

Rewards are often cited as more powerful in controlling behaviour than punishment. (They should not, incidentally be confused with bribes which are given to induce someone to do something illegal or immoral.) They, too, have an educational function; like punishments, they also instil motivation to

behave in a certain way and they reinforce socially approved behaviour. They are undoubtedly powerful but most societies function with a combination of both rewards and punishment.

Common Moral Transgressions of Childhood

Lying. Much so-called lying in young children does not deserve the name for up to as old as seven or eight they easily confuse fact with fantasy. So much is strange in the real would that it is hardly surprising that children invent brothers or sister, or talk about tigers at the bottom of the garden. Much needless anxiety is caused to adults who fail to realise this point.

Most real lies are the result of children trying to avoid punishment, disapproval or ridicule.

Cheating either in games or in school work is directly related to the social esteem attached to winning or succeeding and to the level of self-esteem of the child in question.

Stealing is one of the earliest right and wrong differentiations taught children and one of the most commonly transgressed. The temptation to take an occasional sweet or small coin is easy to understand and such 'stealing' is not a cause for alarm if it remains occasional.

Destructiveness is rare in young children except as retaliation. Much of what is called destruction in probably due more to ignorance or clumsiness. Older children, however, may deliberately destroy something as an attack on the owner or as a perverse form of achievement: at least they can do something.

28
Cognitive Development

Units in Cognitive Activity

The term cognition refers to the processes of knowing, thinking, conceiving etc. It refers to the interpretation of sensory events, their registration and efficient recovery from memory, the ability to manipulate images, symbols and concepts in thinking, reasoning and problem solving. It refers to the acquisition of knowledge and beliefs about the environment, persons and society.

Thus, cognitive activity consists of active processes in preception, memory, ideation, reasoning and evaluation. The major cognitive units include images, symbols, concepts and rules. They may now be briefly described.

The *images* preserve in the mind the arrangement of relations between a set of significant elements in experience. About five to ten per cent of children can have *eidetic images*, images so vivid that they can describe what is contained in a scene or a picture which they have seen and which is not in front of them. Our dreams consist of images.

Symbols, unlike images, are arbitrary ways of representing objects, actions and events. The traffic signs and lights are symbols. The most frequently used symbols are letters, words and numbers.

A *concept* stands for or represents a common set of attributes of objects, action, and events. It is something common to several objects and events. Concepts represent abstracted characteristics of many events while the image represents a particular object or event. Words are necessary to form concepts. First when the child learns the word 'dog', for example, it refers to the particular dog. Gradually it stands for the animal dog. It is abstract and generalised.

Rules are essentially statements about concepts. They express the relation between concepts. For example, the rules 'water is wet,' 'fire burns' are simple, expressing the relation between two concepts. These rules are learnt by children in the pre-school age, two to five years. But there are also more complicated rules which require some kind of action or mental processes.

A boy sees a quiet dog. He may with the rule "Quiet animals are sleeping". But there is also another rule "Quiet animals are dead." If he wants to know whether the quiet dog is sleeping or is dead, he will have to think of a transformational rule "If I throw a stone at it and if it moves it is

sleeping. If it does not move, it is dead." Here thinking comes to the stage of hypothesis and its verification. This is what Piaget has designated as the stage of formal operations which starts from about the age of twelve.

Images, symbols, concepts and rules are the primary entities manipulated in thinking and in intellectual work.

Cognitive activities may be divided in a general way into undirected and directed activities.

Undirected cognition refers to free associations, dreams or reveries. Much of the child's (and even that of the adult) cognitive activities consist of such thoughts.

Directed cognition refers to the processes that occur when a child tries to solve a problem, whether it is one given to him by others or one that he sets for himself.

This is the great change which occurs in the child between 5 and 12 years of age. The richness of cognitive units increases with each year. He becomes increasingly concerned with his own concepts and the reality on the one hand, and with the concepts of others, on the other.

Imagination

A new world opens up to the child when he is able to recall and imagine. In imagination he deals with images and is not tied down to what is before him, perceptually. Imagination plays an important part in cognitive development. He is able to work with his ideas. In the emotional sphere, imagination helps him to play with his desires, fears, hopes and aggressive impulses. Imagination also helps him in social interaction. It is very important in play activities.

Imaginative activity is involved in imitation. Around one year infants imitate the sounds of animals. Urban children will even 'telephone' with a toy telephone or some other object which resembles the telephone receiver.

The imaginative activity of children under three years of age involve (*a*) personification, such as talking to inanimate objects; (*b*) make-believe use of materials like riding a stick (horse), moving a stick (train) etc; and (*c*) participation in make-believe situation like taking a meal with toy vessels, taking a bath, etc.

The child of three or four, who has developed a firm sense of autonomy, tries to explore the world through his senses, imagination and through thinking and reasoning.

Through imagination he tries the roles of important people in the world. Most vital of all are the roles of his parents, especially the parents of the same sex.

In its simplest form imagining consists of representing some part of outer reality by an inner image. Without the use of images as representations, man would be tied down to the sensorimotor level of cognitive development.

In the beginning the child may pretend to sleep on a real pillow or to drink milk out of an empty cup. Next he may pretend that some other object is a pillow or a cup. For example, he may look upon a stick as a horse and ride on it or he may push a stick and call it a train moving. Around four, children sustain long episodes of play based on imagination.

Around four years, some children may even have imaginary companions with whom they play. An

imaginary companion may provide friendship and may be more amenable to his wishes than a real friend.

Around five years children are given to lying. Often these are "children's lies" arising out of "stretching the truth" or out of an inability to distinguish between fantasy and reality. The child may also resort to lying because of failure to meet the parental or social expectations.

Thus, imagination is very helpful if it is constructively used along with reasoning. Otherwise it may lead to fantasy devoid of reasoning and far away from reality.

Piaget's Views on Cognitive Development

The great Swiss psychologist Jean Piaget (b. 1896) has made the most significant contribution to the field of cognitive development. Since 1920 he and his collaborators have been engaged not only in a series of researches on child's understanding, but Piaget has also been engaged in the formulation of a theory of intellectual development which he has been refining continuously as new data came in. This theory has now helped us to understand how thinking in the child develops. He has drawn attention to many aspects of intellectual development in children which had gone unnoticed by previous investigators. The most significant thing is that all his theories of child development have been securely based on the study of the child. For over fifty years he has observed, interviewed and tested children of all ages. It is the empirical data patiently collected over decades that constitute the foundation of his theory. An attempt will be made to briefly describe his studies and the theory of intellectual development in the child he has formulated. The recent publications by Baldwin (1967), Maier (1968) and Ginsberg and Opper (1969) are of great help to understand the work of Jean Piaget.

According to Piaget two intellectual traits characterise children's thought: "realism" and "animism." These tendencies grow from the child's "egocentrism," the child cannot differentiate himself from the world; nor can he discriminate clearly between the physical events and psychological events; thoughts, feelings, wishes and so on constantly get confused with objective reality. The tendency of the child to see psychological events like thoughts and dreams as physical events is called by Piaget "realism." A complementary form of egocentrism is the tendency of the child to give physical objects and events psychological attributes, to endow them with life and consciousness; this is "animism."

The children were asked such questions as "If I pull off this button, will it feel it?" Does the sun know it gives light?" On the basis of the responses of children of varying ages, Piaget suggested four stages in the development of child's thought. (1) An object can be potentially conscious; if it is moved it can feel. (2) Consciousness can be attributed to objects which regularly possess some kind of movement; a bicycle and the wind may feel but a stone cannot. (3) Only objects capable of spontaneous motion are conscious; the sun and wind can be, but not the bicycle. (4) Finally, the child attributes consciousness only to people and animals.

1. *Sensory-motor stage* is from birth to two years in which action is governed by sensations; simple learning occurs; but the child does not think at this stage. According to Piaget these early sensory-motor experiences have profound and probably irreversible effects on his later perceptual and intellective abilities. These early sensory-motor coordinations of the infant, which consist of binding together the simple sensory inputs and response productions to reach an external goal, lead gradually to the development of symbolic processes.

2. *Pre-operational thought* occurs roughly between two years of age when the sensory-motor development is completed and six years of age, when the period of concrete operation begins. A major feature of preoperational thought is that it is egocentric. He has no need to justify his reasoning by logic or to look for any internal consistency in his thoughts. He is unable to consider other features of the situation; he concentrates on a single feature of an object to the neglect of other important aspects. He attends to superficial features of events, particularly those which attract his attention. Thirdly, he concentrates on static states rather than on the dynamic transformations. He is not able to link successive states into a coherent sequence. This reflects a limitation on his ability to handle complex information processing. Finally, there is the inability to reverse; a cognitive organisation is reversible if one can start a line of thought and, at some point give it up or suspend it and go back to the original point. So there is no flexibility in thinking. However, the chief feature is that the preoperational child is capable of symbolic representation instead of only direct action which is the significant feature of the sensory-motor infant below two years. It is because of this he is able to use the language which he has acquired in the second year to express his needs and to establish relation with his parents, siblings and other adults and children in the neighbourhood.
3. *Concrete operations stage* develops at the school age at six years. The main difference between the preoperational stage and the concrete operational stage is that the latter is concerned with the stability and integration of his cognitive system. It is at this level that the child can add, substract, multiply, and divide. He is now capable of classification of concrete objects. He may also combine these classes to form a superordinate class. These are logical operations. These operations show how the child develops from simple associations to logical operations. These operations are called "concrete" because they relate directly to objects; they are not yet verbally stated hypotheses involving abstract thinking.
4. *Formal operation stage.* Between eleven or twelve and fourteen or fifteen, the child succeeds in freeing himself from the concrete and the present to the abstract and non-present and future. This is the age of great ideas and the beginning of theories. He is now capable of handling hypotheses and of reasoning with propositions removed from the concrete and the present. This new structure of thought is formed during preadolescence. This stage is the culmination of the sensory-motor structure (from birth to two years), the pre-operational structure (from two years to six years), the concrete operational stage (from six years to about eleven years). While the concrete operations relate directly to objects and to groups of objects and to relations between them, the child at this stage of formal operations is ready to proceed to the level of verbal propositions and thus free himself from the concrete and the present. He is capable of drawing conclusions from truths which are merely possible. This constitutes the beginning of formal thought. The notion of proportion appears at eleven or twelve, in several different areas. Another significant feature of this stage is the spontaneous development of the "experimental spirit." This is impossible at the level of concrete operations.

While Piaget and his coworkers have given a picture of mental development from infancy to pre-adolescence based on their observations, interviews and experiments, it must be recognised that these

states are really controversial. However, they are helpful in setting up hypotheses for further study of intellectual operations of the child.

Some Specific Aspects of Intellectual Development

A brief description of some specific aspects of intellectual development studied by Piaget may now be described.

Concept of object permanence is an essential prerequisite for conceptual thinking. According to Piaget between 18 and 24 months the child comes to realise that the objects have substance, occupy space and are permanent. The child also understands that another individual is different from himself and from the environment.

Space and spatial relations. At the same time as attaining the concept of "object permanence," the child also acquires the spatial concept. Piaget describes six stages in the development of spatial relations. The child learns to use his hands to grasp objects and thus becomes aware of the spatial relations between objects. He next learns relationship between things themselves. In the final stage, he can make detours to reach an object when obstructions are there preventing direct approach. This shows that the child realises that space is an ordered environment with himself, others and the objects.

Mass, weight and volume. Piaget's experiments show a steady understanding of mass, weight and volume. But studies have shown that it is the mental age rather than the chronological age that is more important to develop these notions.

Causality is a very important concept in intellectual functioning. During the first stage, before three years, the child confuses objective and subjective reality and there is magical thinking with the belief that desire can influence objects. At the second, the pre-causal stage, the child thinks egocentrically making no attempt at logical justification for his beliefs. It is at the third stage, after eleven years that logical and real categories develop and the child can give logical casual explanations.

Probability concept. Between the ages of three and six, at the preoperational level, the immature thinking of the child is incapable of distinguishing between possibility and necessity. He is influenced more by contiguity in space and time than by causality. After the seventh year the child begins to distinguish what is necessary from what is possible. From this arises the idea of multiple possibilities. After eleven years, during the stage of formal operations, the child can understand abstract concepts such as combinations, permutations and proportions.

The growth of number concept. The ability to understand classes and relations is basic to attain mature concepts according to Piaget. It must be understood that piaget's concern is not with mere addition and subtraction processes which are taught to the child in the first few grades in the school. According to him, simple addition and subtraction of whole numbers can be carried out by the child entirely as a rote process without understanding. The child can memorise the addition and subtraction tables as he does the multiplication table at this stage, without understanding the basic concepts and processes underlying them.

Among the basic ideas are "one-to-one correspondence," and "conservation."

Investigations through one-to-one correspondence. For instance, when a collection of five different objects or diagrams are presented, their colour, size etc., are completely irrelevant. What is required is

that the set contains a definite number of discrete objects. It requires just counting the objects irrespective of the other characteristics of objects. Even if counting is not possible, the child can produce another set of five objects by matching each object in the given set with one object from a box containing many objects of varying sizes, shapes, colours etc. This operation involves the idea of one-to-one correspondence and may be used in a variety of situations as, for example, in determining the number of chairs to be put round the table or the number of plates, tumblers etc., for the given number of people who are going to dine. This relates the number of chairs, etc., to the number of persons. Thus one-to-one correspondence establishes that any two sets are equivalent in number, irrespective of the nature of objects comprising them.

Investigation through conservation. The second basic idea investigated by Piaget is "conservation." Supposing there are two sets, each with a number of objects equal to the number of objects in the other, but there is no one-to-one correspondence, that is, one set is arranged in one way and the other set is arranged in a different way, can the child recognise that even now the number in the two sets is the same? If the child recognises the equivalence of the two sets, then it can appreciate certain basic constancies or invariances in his environment. In other words, the mere physical rearrangement of the objects in the two sets should not bewilder the child. If it does then it is obvious that the child's world of numbers is chaotic.

Experiments on "One-to-one Correspondence and Conservation"

Piaget conducted a number of investigations to study the child's understanding of these two basic ideas, namely, one-to-one correspondence and conservation of the equivalence of two numbers. The description of a simple experiment will help to understand how Piaget conducted the studies in this field. A child of 4 years 7 months was shown a set of ten sweets in one row. It was said that those sweets belong to his friend. He was then given a box of sweets and was asked to pick out the "same number" of sweets, from the box for himself. He picked up a handful and put them; when he was asked if the two sets are the same, he said "not yet" and added some more and then said that it was alright. When asked why, he said "Because they are like that" (indicating the length). This shows that the child is not yet able to use the method of one-to-one correspondence. He thinks that the two sets are equivalent in number if they have the same length. He has failed to coordinate the two dimensions of length and number. Another child of 4 years 4 months was able to understand the principle of one-to-one correspondence. He was then given the conservation experiment. One set contained a row of ten vases and the other set contained flowers. He was asked to arrange the two sets so that they match. Though he counted ten vases he took and arranged 13 flowers and made the two sets of the same length. When he was asked to put one flower in each vase he had three flowers left over. To find out if the child "conserved" the equivalence, Piaget took out the ten flowers and bunched them together and asked the child whether these were the same number of flowers and vases. The child said that there are more vases because the vases set was longer than the flower set. When asked, "If we put the flowers back into the vases, will there be one flower in each vase?," the child said yes. Then Piaget made the vases closer and spaced out the flowers. Then the child said that there are more flowers. Thus even when the child operated on one-to-one correspondence, he failed to conserve the number equivalence. In another experiment Piaget found that even counting of two sets does not affect the child's judgment of numbers. A child of 5 years and 3 months was shown a set of six glasses and a set

of six bottles; he counted each set correctly; he said that bottles are more because the bottle set was longer than the glass set.

Piaget found that at the concrete operational stage, after the child is more than six, he can solve the "conservation problem." At this stage the child will be in a position to say that two sets are of the same number irrespective of arrangement, length, etc.

Piaget conducted similar studies to find the age at which the child can recognise the "conservation" with respect to quantity. At seven years the child was shown two beakers of equivalent size and filled with equal amounts of a liquid. After he agrees that the two quantities are equal, the liquid of one beaker is transferred to a shallow wide beaker or a narrow tall one. If the child continuously asserts in each case that the amount of liquid, transferred from beaker of one size to beakers of other sizes, is the same then he has conserved continuous quantity.

With respect to conservation of volume, according to Piaget, there is no understanding of the concept below the age of about seven. Between seven and eight or nine there is an increasing understanding that the shape of an object may be altered without changing its volume. By about eleven or twelve years the child understands that volume is a function of length, breadth and height.

Though Piaget has described the sequence of stages of cognitive development, he emphasises that the ages at which the stages occur may vary considerably within and between cultures. Further, the course of an individual's development is continuous; the transition from one stage to the other is gradual and occurs over a long period of time. Nor is the child at the same stage of development with respect to different areas. Thus, he emphasises that these stages do not follow one another automatically; his theory of development is not a purely maturational one; the stages do not unfold themselves in a predetermined pattern.

According to Piaget, the process of cognitive development, particularly the development of organised belief systems, is the process of "equilibration." He assumes that the individual gradually acquires some of the elements of the operational system either through social learning or through experience. These unorganised ideas or beliefs produce a conflict. Because the child at the pre-operational level has items of information which are not all consistently organised, he constantly surprises the adults by being logical at one moment and by being apparently illogical at the next. These inconsistencies lead him to harmonise his ideas with one another. This is the process of equilibration. With or without help the child tends to reorganise his beliefs into a coherent and equilibrated system.

Thus, according to Piaget the process of development is based on (*a*) certain maturational processes, although their exact role has not been determined; (*b*) the results of experience with the environment; (c) the results of explicit or implicit teaching by the other people; and (*d*) finally, the process of equilibration when there is any self-contradiction between the various beliefs. However, there is hardly any empirical evidence to support the hypothetical process of equilibration. This is really a matter for further study.

Bruner on Cognitive Growth

An attempt may now be made to study briefly Jerome Bruner's theories of cognitive functioning and development. According to Bruner, it is through the use of "techniques" of the mind, that the individual develops from infancy to maturity. These techniques are action, imagery and language.

Secondly, there is the problem of integration, the way in which acts are organised into higher orders in which larger and larger units of information are used in solving problems.

According to Bruner, cognitive growth is culture-bound. He emphasises the role of learned techniques in the representation of the environment—the world and the people. The child has often to reorganise his way of viewing and imaging things to suit the language he has learnt; in other words, language modifies his view of the world.

An important concept is Bruner's theory is "information seeking." With increased information, the alternatives can be arranged hierarchically. The child is now less dependent on images. Bruner, *et.al.*, (1966) further assume that information about the environment is coded in some manner. This is the idea of "representation." In the first stage there is "enactive representation" in terms of a specific habitual action; this is the infant stage. At the second stage, there is "iconic representation" in terms of images. In the third stage of coding there is "symbolic representation," particularly in terms of language. According to Bruner language embodies the "ultimate structure of thought." However, language matures earlier in the child than the intellectual capacities. With further intellectual development, language becomes an instrument of thought; in other words, thought becomes verbalised. In order to use language as an instrument of thought, the child must first bring the world of experience under the control of principles of organisation. In an advanced culture, he is able to use language to organise, understand and manipulate his experience. But in a tribal or rural culture, he may remain at the lower levels of manipulation, that is, using actions or images rather than words.

But, it must be emphasised that in helping the child to learn at home or in the school, specially before he attains a mental age of eleven or twelve, all the three types of codes mentioned by Bruner must be used. In fact one of the chief defects of the current elementary education in India is that it is overwhelmingly verbal, neglecting objects, actions and images.

Cognitive Style

Cognitive style is the way in which an individual comes to grip with reality. Broverman and Lazarus (1958) have suggested that the cognitive style may manifest itself in two ways, as a directive influence on behaviour, or as an ability to resist disruption under interference conditions. The cognitive style may be "perceptual-motor" dominant or "conceptual" dominant. These two are polar so that if one is more dominant the other is at a low level. Harlow (1959) has shown that for some children the parts are the bases of organisation, while other organise materials by inference. But in simple and in highly practiced tasks, "automatisation" may appear, irrespective of whether the style is perceptual—motor or conceptual. Automatised behaviours are those that have been so highly practiced that a minimum of mental and physical effort is required for their execution. It is obvious that automatisation of simple habits is a necessary condition for the acquisition of new and more complex activities, as in arithmetic, for instance.

Productive Thinking

Productive thinking can be studied under two heads: (1) problem solving, and (2) creative thinking. However, the two are closely allied and overlapping:

(1) *Problem solving* tasks require considerable intellectual effort in contrast to motor skills and memorisation of verbal materials. Problem solving involves concept formation and generalisation.

Concept formation. Experiences are fragmentary; they give us particulars. Even at the sensory-motor stage of development, that is, before the child is two years old, the child learns to use words as labels for objects, persons and activities. Concepts are formed as objects or data are also classified and grouped systematically. Generalisations are formed by interrelating two or more concepts. The application of such generalisations to concrete experience is called problem solving. Problem solving involves the forming and testing hypotheses and evaluating the results of tested hypotheses.

Concepts are formed on the basis of experiences. When the individual perceives that two or more objects or qualities or activities can be placed in the same class because they have some characteristics in common, he is forming a concept. Thus, a concept is the recognition of the common characteristics in some objects, activities etc. It involves the use of a word as a label. For example, the child forms the concept of dog or cow or toy or chair in this manner. The word 'dog' now stands for all the animals which have certain characteristics in common. The concept animal is higher since it involves the common characteristics of a larger group.

Generalisation. With the help of concepts one can *generalise;* one can make statements which concern two or more concepts like, for example, the statement "fire burns." The child must have the two concepts, fire and burns. When it links the two concepts the child has reached the stage of generalisation. Such generalisations help to explain or to predict events. Generalisations may be acquired from a series of specific instances, by "induction" or from the statements made by others which can be applied to particular cases as in "deduction." Both these processes are indispensable tools in reasoning and problem solving.

The concepts and generalisations which a child acquires depend upon the kinds and qualities of experiences he has had. By the time the child comes to the school he has acquired a large number of concepts like "boy," "girl," "house," "tree," "large," "small," "same," "different," etc. In the school he acquires many more concepts of increasing complexity and abstractness. The task of the teacher is to help the children to crystallise, broaden and refine their concepts.

Problem solving and creativity are evidences of a high level of cognitive development. Problem solving depends upon the availability of a wide range of concepts and generalisations and the development of thinking, whether it is with respect to problems in ordinary life situations or problems connected with intellectual challenges. It also depends on the self-concept of the individual engaged in problem solving, whether he has the confidence to solve the problem.

A person is said to be faced with a *problem situation* when he cannot react to it with his usual habitual responses; his past experience is not enough of a guide to meet the situation. Another characteristic of a problem situation is that it involves a number of alternatives which have to be considered carefully in arriving at a solution. Thus, a problem situation arises when there is a situation which cannot be faced with habitual responses, or when there is a goal to be attained but there is no well-defined and well-established means to attain it or when the goal is vague and unclear so that one cannot determine the relevant means to attain it.

Many cases of illness, though not all, are problems to the medical practitioner. Legal cases involve complicated problems. All the detective novels are based on problems posed by the murderer or other criminals. The mother will be faced with problems when she has large quantities of some kinds of

vegetables and has to prepare a variety of dishes so that children do not feel the menus are monotonous. The young woman may be faced with a problem when she falls in love with an young man who is not of her caste or class or race. Highly skilled workers like tailors, masons, carpenters, mechanics, etc., have to solve many problems in their work.

Long ago, John Dewey of America (1933) listed five steps in problem solving; (1) recognition of the problem, (2) analysis of the problem, (3) suggestions of possible solutions; (4) testing of consequences, and (5) judgment of the selected solution. One important requirement between the second and third steps above is the survey of all the available information. The most important, however, is the first step, the awareness that there is a problem to be solved, the awareness of the difficulty faced by the person. Another significant aspect of problem solving is the "insight" which helps to generate new ideas which will help in the solution of the problem.

According to Guilford (1956), when the problem is recognised, when one becomes aware of the problem, information-seeking starts. This information comes from a study of the immediate environment and by a recall of past experiences. It is obvious that the past experience may not be a help since the situation is new, but is could be of value in solving the present problem. Guilford (1956) distinguishes four characteristics of thought in this phase: fluency, flexibility, insight and evaluation. *Fluency* represents the efficiency with which past experiences which are relevant to the current situation are recalled. *Flexibility* is the opposite of rigidity in thinking; the person with flexibility considers several alternatives. *Insight* is the sudden transformation which is observed in problem solving situations. This is the inventive element in the situation. Long back, Kohler showed that chimpansees can exhibit insight. When he placed two sticks near the chimpansee neither of which was long enough to reach the banana lying outside the cage, the chimpansee, after many unsuccessful attempts, suddenly interested the thinner stick into the hole of the thicker stick, made a longer stick, and drew the banana. The chimpansee was confronted with a typical problem solving situation and it solved it with insight after many vain struggles. When the individual is able to produce a solution by insight he has to go to the next step, namely, *evaluation*. The solution obtained by insight may not be a genuine solution at all. It is only by applying it, by trying it out, that it is possible to find its value, its usefulness.

According to Bruner (1964), the child must learn not only to recall past experiences relevant to the present situation, he must also learn to "organise" such recalled experiences in such a way that they are not bound to the situations in which they were learnt. Bruner asserts that we can deal only with about seven independent items of information at one time; so it is necessary to get all the facts organised in some coherent way. What is recalled and organised must be "manipulated" according to the existing cognitive structure. As noted above, the child has to be helped in these "techniques" by emphasising "discovery" in learning as opposed to mere "acquisition of information." This will help the child to learn varieties of problem solving and transferring information for better use.

Success in problem solution also depends on the level of anxiety. Students, who tend to become anxious regarding their success in examinations, perform poorly on problem solving tasks. Similarly, frequent experience of failure increases anxiety and affects performance. Thus a medium level of anxiety is useful.

However, it must be recognised that there is no such general skill as the problem-solving skill.

Consequently there cannot be any training in this field. All that can be done is to help children understand that when they are confronted with problems they must think about the nature of the problem, study the situation carefully, recall relevant experiences, allow themselves to have an *open mind* so that solutions can occur and carefully test these solutions. What is possible is to help the student to develop an *attitude* to open-mindedness so that he can locate problems and try to solve them.

(2) *Creative thinking.* In sciences as well as in the arts, progress depends upon those individuals who are able to generate new concepts. According to some thinkers, one of the important aims of education is to foster and stimulate creativity. When the creativity is low in a society it becomes more static than dynamic.

What are the antecedents of creativity? To what extent can it be fostered in the growing child?

Creative behaviour may be roughly defined as that which is original, relevant or principal to the solution of a problem. Creativity is the capacity to produce new, previously unknown, compositions, products or ideas. It may be imaginative activity or thought synthesis involving formation of new patterns and combinations of information. It must also be purposeful or goal-directed, not mere idle fantasy. It may take the form of an artistic, literary or scientific production or it may even be purely procedural. Many tests of creativity have been designed, based on rather different assumptions; this reflects the diversity of opinion regarded the concept of creativity.

Relatively high formal intelligence, as measured by intelligence tests, seems to be a necessary, but not in itself sufficient, cause for creativity.

Guilford (1956) developed a model of creativity and intelligence. He proposed three dimensions of intelligence: (*a*) content—figural, symbolic, semantic and behavioural; (*b*) operations—evaluation, convergent production, divergent production, memory, cognition; and (*c*) products—units, classes, relations, systems transformations and implications. Guilford believes that creativity and intelligence are separate abilities.

Within the area of creativity, Guilford postulates two quite different sorts of productive thought. Convergent thinking occurs when the child follows rules to formulate a product. Divergent thinking, on the other hand, results in the production of novel ideas.

Analysis of introspective reports of many famous men of science regarding the process of creativity reveals the following four stages in creative process: preparation, incubation, insight and verification. First there is the stage of intense preparation; they learn as much as possible about the subject in which they are interested. Then comes the period of incubation when there is little work; probably there is intense activity at the unconscious level. After sometime there is insight, a new way of looking at the problem. The final stage is the stage of verification. Here there is evaluative thinking following logical sequence.

Creativity and Intelligence

The preception and interpretation of events and their storage in memory are the two basic processes underlying all the higher cognitive processes.

The child with a rich and varied store house of images, concepts and rules and who uses these units of cognition in an original and constructive way is *creative.*

What is the relation between creativity and intelligence? Wallach and Kogan (1965) gave a test of intelligence and a test of creativity to a group of fifth-grade children. The tests for creativity required the child to generate many unusual hypotheses to solve problems. In another test they were given a characteristic and asked to name as many objects as possible which had that feature. For example, they were asked to name all objects which are sharp. They were asked to think up varied uses for objects. For example, the varied uses of newspapers. In another test they were shown line drawings and asked to think up all the things that drawing might be. On the basis of the results the children were grouped into four categories: high intelligence and high creativity, high intelligence and low creativity, low intelligence and high creativity and low intelligence and low creativity. It was found that children high in creativity and intelligence were self-confident in school and popular with their friends. High creativity and low intelligent group were just the opposite in personality.

Factors Affecting Creativity

Several factors affect an individual's creativity, in particular factors of personality, cognitive style and social environment. As regards personality, the creative person appears to be more interested in ideas and things than in people; so he is less sociable. Among the outstanding characteristics of successful children are their self-assurance, feeling of perseverance and lack of inferiority feelings. In general, studies show that creative people are less repressed and neurotic than non-creative individuals. As regards cognitive style, Kagan and Moss (1962) showed that some children are analytic—they pick small part of the stimulus and solve the problem on that basis; others are more conceptually oriented—they pick relations among the items. Finally, regarding social environment, the family of a highly creative individual tends to support his divergent ideas, but his peer group does not. In the school the person who gets academic distinction is appreciated more than the person who is creative.

Maslow (1954) has described creativity as a characteristic feature of "self-actualising" people. He looks upon creativity as a fundamental property of human mind and that it is lost in the process of socialisation.

Discussing the personal characteristics of the creative person, Wallach and Kogan (1965) have said that the essential elements in the creative persons are twofold: first, the production of an abundant and unique associative content and, second, the presence in the individual of a playful, permissive attitude towards the task.

The role of "risk-taking" in creative productivity has been discussed by Torrence (1962). The creative person is willing to take a calculated risk. According to him two personality characteristics differentiate the highly creative child from the equally intelligent but less creative child. The former had a reputation for wild and silly ideas according to the teachers as well as peers. His work was characterised by playfulness, lack of rigidity and relaxation.

Five Obstacles to Creativity

Mussen, Conger and Kagan (1974) describe five obstacles to creativity in problem-solving. They are failure to comprehend the problem, forgetting the elements of the problem, insufficient knowledge, fixed prior beliefs and fear of failure.

Most pre-school children do not generate creative solutions to problems because they fail to

comprehend the problem or forget the problem or because they lack sufficient knowledge. Many school-age children do not generate creative ideas because of fixed prior beliefs or because they are afraid of failure. These two operate even among adults.

Training in Creativity

Covington and Crutchfield (1965) used detective stories for solving the mystery problems and trained children to solve them. After training, they used three criteria as measures: problem-solving tasks, tests for divergent thinking and attitude and self-evaluation measures tapping self-confidence in problem solving and values regarding creative thinking. They used children of fifth and sixth grades as experimental and control groups. They report that the experimental group did markedly better than the control group.

According to Torrance (1962) the schools show little interest in recognising and encouraging the creative child. He documents instances of the way in which unimaginative teachers have stifled the lively mind of the imaginative and creative child. He also gives instances of teachers who are themselves creative and who encourage it in their students.

In another study, Torrance (1965) tried to stimulate the flow of creative ideas among children in grades three to six. Each child was encouraged to have an "idea trap"—a small book in which he recorded his ideas as they came to him—ideas for poems, stories, jokes, songs, cartoons, inventions etc. He found that children could be stimulated to a great extent by this procedure. The third graders were most productive. Torrance recommends that the teachers should encourage and reward the children's creative thinking by being respectful to their questions, to their imaginative and unusual ideas, give them opportunities for practice or experimentation and help them to evaluate their ideas and products.

Our present knowledge, however, is not sufficient to know in what way creativity is distributed among the children and the ways of stimulating the talents. All that can be said with confidence is that the parents and teachers must develop a new outlook and support the child who is creative in arts, sciences etc.

An Indian Study on Concept Development in Children

Narayana Rao (1977) has studied concept development in children. He has tried to test Piaget's ideas using an experimental design. In the first study he deals with the children's concept of conservation of mass, weight and volume. Conservation is the awareness of the properties of objects which are unaffected by transformations of shape, mode of representation, etc. The second study is concerned with the possibility of developing conservation through training, that is, whether these would be transfer of training of conservation in mass or weight to another area like volume. The third study is concerned with the nature of scientific concepts acquired by children, particularly regarding the concept of causal relation and the concept of life.

The subjects in the first study were children in the age group 4 to 8 years. They were divided into nine sub-groups with half-year intervals on the basis of age. The second variable is socio-economic level, upper and lower. The third variable was sex. The fourth variable was intelligence as measured on the basis of draw-a-man test and divided into two groups high and low. The fifth variable concerned the three types of quantities, namely, mass, weight and volume. The sixth variable concerned the kind

of material, namely, wooden cubes, six colours of plasticine and six colours of plastic wires. There were 432 subjects in all. There were 48 subjects at each age level.

A subject was considered to have attained conservation of substance, whether mass or weight or volume, when it was asserted that it remained unchanged in spite of changes in form, shape etc. That is, the child has realised that nothing is added or taken away from the substance when there is mere change in form, etc. The results showed that the conservation scores increased with age. The scores were higher for mass than for weight and volume. The scores for mass increased from the age of four. For weight improvement started from six years. The lowest conservation scores were for volume. They remained low till seven years and then showed improvement. They F ratios for SES, age and quantities were significant, sex did not show significant difference.

The second study was planned to test Piaget's views regarding the role of learning on cognitive development. The children tested were from four to six years enrolled in nursery schools. The N was 320 with 160 in experimental group and 160 in control group, half were boys and half were girls. In the experimental group, one-half was trained verbally and the other half were merely presented with the various alternatives. The children were tested for conservation of mass, weight, length, number, area and volume. The materials used were plasticine of different colours, wooden pieces and plastic chips. Training was given to the experimental subjects individually in four conservation tasks—length, mass, weight and number. The results showed that training influenced the conservation performance. As regards the method of training, it was found that verbal rule instruction was better than non-verbal training. However, it was found that there was no transfer effect in conservation of different quantities. That is, the training had effect only regarding the quantity in which training was given.

The third investigation was planned to study the nature of scientific concepts regarding causal relation and life concept acquired in later childhood. Altogether 2250 children, 1125 boys and 1125 girls, of the four age groups from five to nine years, 225 in each age group, studying in grades I to V were the subjects. The children were from three localities, urban, semi-urban and rural. They were given Raven's coloured Progressive matrices test to measure their intelligence.

Ten questions regarding the causation of rain, thunder, lightning, disease, day-night, smoke, balloons wind, aeroplanes and clouds were asked. Five experiments were demonstrated individually to the subjects—candle in jar, coin in the wooden cup, level of water, dropping a stone on the table, bulb on tube. As regards the concept of life, 12 questions were asked, six relating to living objects—tree, seed, fish, dog, bird and fly and six related to non-living objects—cart, bicycle, moon, sun, cloud and river.

As regards causal relation, it was found that the F ratios for sex, locality and age were significant. However, when sex differences were considered in terms of age and locality, they were not significant. As regards locality, the differences between urban and rural groups at each age level were significant. The difference between urban and semi-urban were significant only at 9+age. There were no differences between the semi-urban and rural groups at any age level.

With respect to the concept of life, it is reported that the boys in the rural set up are better than girls, while there is no difference between the two sexes in the urban and semi-urban localities. Thus, on the whole there is no sex difference regarding the concept of life. There is a definite influence of age, the scores increasing with age. However, there is no relationship between mental ability and concept

acquisition, probably because concept acquisition is a matter of learning. Nor was there any relationship between the acquisition of concept of life and the educational background of the family. Similarly, there was no relationship between acquisition of concepts of casual relation and life and socio-economic background.

It was found that 35 per cent of the children of the five age groups gave 'phenomenalistic' answers and 34 per cent were not able to give any answer at all. Ten per cent gave 'mechanistic' type of responses and only four per cent gave 'logical deduction' type of response (the highest being at nine age group—nearly 9 per cent).

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Scientific Study of Behaviour and Development

Some Indian Views

It is a familiar fact that the mother and grandmother in rural as well as the urban areas of India are aware of some aspects of the normal rate of the development of a child. They know when the child moves by himself and lies prone on his chest, when the child starts crawling on all fours, when he crosses the threshold, etc. The ancient Indian texts called *Grihyasutras* composed around 1000 B.C., describe these various ceremonies like the *Jatakarma* which is performed when the child is born, the *namakarma* which is performed when the child is ten days old the *Annaparasana* which is performed in the sixth month, the *chudakarma* at the end of the first or the third year and the *upanayana* when the boy is in his eighth year. The *Aksharabhyasa* ceremony is performed when the child is five years old; but this is not described in the *Grihyasutras,* because at that time writing was not learnt; all leaning was through hearing, *sravana.*

One of the famous *subhasitas* gives in a brief but impressive manner the method in which children should be looked after. It says that during the first five years the child should be treated with extreme affection—*lalayet.* In the next ten years, roughly from six to sixteen, he should be treated with strictness, *tadayet*, so that he learns to conform to the social norms. After his sixteenth year he should be treated as an equal and friend, *mitravat.* (Kuppuswamy, 1964).

Darwin and Preyer—Scientific Study

The scientific study of child behaviour and development may be traced to an article " Biographical sketch of an Infant" by the great British biologist Charles Darwin (1809-1882) published in 1877. In this article Darwin gave the results of a detailed and careful observation of the behaviour and development of an infant. In 1881, William Preyer of Germany published his more ambitious study of the same kind, *Mind of the Child.* He observed the development of reflexes from birth and also described the gradual changes which arise as a result of experience and learning. In early nineties a new interest in child study began with the starting of the " Pedagogical Seminary," the first journal devoted to the subject by Stanley Hall in United States in 1891 and with the establishment of the British Association for Child study in 1893 in England. Another landmark was the establishment of the first psychological clinic for treating maladjusted children in Philadelphia in 1896.

Thus facts of child behaviour and development were gathered by systematic observation of the growth of children by Charles Darwin in England , by William Preyer in Germany, and Stanley Hall in America. The main difference between scientific observation and everyday observation is that in the former observation is restricted to one set of facts, while in the latter it is extended to all the things that form part of one's experience. Secondly, the man who pursues scientific observation of child behaviour notes down the facts and conditions carefully while in every day observation we depend upon memory and note it only mentally. Scientific observation is not only accurate, it also includes the negative findings, the instances which do not fit our expectation. Further observation leads to the formation of hypotheses; when a hypothesis is formed, further observations are made in order to test the truth or falsity of the hypothesis. It is in this manner that scientific investigation leads to an increase in our knowledge of reality. Such knowledge not only helps us to have a clearer understanding of the world, it also enables us to predict future events more precisely.

The Aim of Scientific Study

The aim of scientific study is to make observation that lead to accurate predictions. But such prediction is never certain. Scientific prediction is merely a statement of probability. It sets forth the chances that a certain event will happen. For example, it may be predicted that a child with IQ 70 at age 12 has less than one chance in hundred of completing the high-school course by age 20. This form of prediction is based on a study of facts as formulated by a law. But the statement expresses only a probability and not a certainty. A second type of prediction is limited; it applies only to an individual case. It is aimed at understanding a particular individual. Such predictions are very useful in clinical work and in treatment of behavioural disorders of children. It is obvious that such prediction are even less certain than statistical predictions, though both kinds of predictions are based on a study of facts, the results of which are formulated in terms of laws. Predictions which have a high probability help us to control phenomena. In other words, such knowledge will have utility; it will help to alter the behaviour of child by altering the conditions under which the child is living, by helping the parents and teachers to alter their behaviour in order to promote the well-being of the child. For example, through some form of training and through alterations in the environment it is possible to help a delinquent child to over-come the tendency to commit crimes or a child with some behaviour disorder to overcome such disorder and lead a normal life in society.

Methods to Study Child Behaviour and Development

A brief consideration of the methods used to study child behaviour and development will help us to understand how facts are gathered in this field.

Observation

Child study started with observation of the behaviour of the child as he grows up by the parents who maintained a diary and noted all the particulars. As noted above, the great biologist Charles Darwin maintained a diary noting down the behaviour and development of his infant son. However, a common defect in the records so made is the failure to separate facts of observation from an interpretation of the facts there is always the tendency on the part of the parent to project into the child the emotions, motives and attitudes of the adult. In this manner the observations tend to be subjective. Further, such observations are limited to the particular child and can hardly be looked upon as representative of all

children of that age. A modified modern approach is that of " case-study". A trained person collects a great variety of information about a single child with whom he is concerned. Such careful records may be maintained regarding a child who is given to bed-wetting even at the age of four or five or a child who is not making any progress in school work or a child who is given to delinquent acts in the school. The parents, teachers and other relatives are interviewed; class records are studied ; the child himself may be interviewed on several occasions; the child may be sent to a clinic for mental testing.

An attempt is made understand the problems confronting the child and the methods used by the child to cope with these problems. The clinician will be in a position to help the child, the parents and teachers and give a programme which involves new activities and new relationships. Another modification of the method is to observe the child under "controlled" conditions so that meaningful comparisons may be made with other children observed under similar conditions. A child is observed for a minute each time and such observations are distributed at random throughout the day for several weeks. Symbols are used to record the behaviour observed, like non-attention, recognition, action, participation, giving help to other children, etc. Such "time-sampling" studies have given a wealth of material regarding social behaviour, language behaviour, etc. Different observers can use the same symbols to record behaviour. In this manner generalisation can be made about a particular behaviour

Questionnaire

Another technique is to frame a questionnaire to obtain information on a specific problem in a brief interval of time. The same questionnaire can be used to collect data from a large and representative sample.

Tests

But the most objective way of getting reliable information about behaviour is to use intelligence tests and personality tests. The results of these tests give good insight into a child's ability and personality. They also help up to predict how the child would cope with other tasks and other situations.

Experimental Method

Finally, there is the experimental method which is designed to control the phenomena under investigation, and the variables of which are being observed. In the thirties there was a controversy regarding the effect of nursery school experience on the growth of intelligence of children. The aim of the nursery school movement, which started in 1908 was to provide the children of the pre-school age, that is between three and six years, stimulating environment, company of children of the same age, guidance by a competent and trained teacher so that the physical development social development and language development are all facilitated. The nursery school movement was based on studies which showed that the child will be dull and unimaginative if he is brought up in an environment that is not stimulating. It was also believed by some that a couple of years in the nursery school would increase the child's intelligence. An experimental design will help to test the hypothesis that the nursery school experience raises the IQ. A random group of five-year old children may be given a standard intelligence test. On the basis of the result two groups matched in intelligence and socio-economic status of the parents may be set up. One group, designated the 'experimental group' is sent to a nursery school for one year. The other group designated the 'control group' is not sent to any nursery school. After one

year the two groups could be tested once again. If the scores of the experimental group are significantly higher than those of the control group. The hypothesis is accepted. If the scores of the two groups are close to each other the hypothesis can be rejected. Careful studies showed that enriched nursery school environment had a good effect on children coming from deprived or impoverished homes' but there was no such effect on children coming from homes offering an adequate amount of intellectual stimulation. Though such studies showed a limited effect of nursery school experience on intelligence, they showed a pronounced difference between the experimental and control groups on the social and emotional adjustment of the children. The children with nursery school experience showed greater spontaneity in behaviour, more independence, initiative, self-reliance and curiosity than the children of the control group. Thus experimental studies showed that nursery school experience encouraged the development of independent behaviour in children' in such an environment the child learns to look after himself. The merit of the experimental method is that it enables the investigator to find the effect of nursery school attendance (the "independent" variable) on the scores in intelligence, independency etc., (the "dependent" variable. Though this method is very valuable to isolate the factors, it is not applicable widely since, more often than not, the investigator cannot manipulate the independent variable. Studies have clearly shown that acceptance or rejection by parents have an important bearing on child's personality and adjustment. It is clear that this is not open for testing by using the experimental method, since it impossible to request the parents to reject their children for purpose of study. The hypothesis can only be tested by taking two groups of children, one accepted by parents and the other rejected by parents, due to reasons beyond the control of the investigator, and study the characteristics of the two groups. It is obvious that this a is difficult way of studying the problem since other variable would be operating.

Other Methods

Besides the above methods of studying behaviour, there are three further methods to study development of behaviour. By development of behaviour is meant the changes in behaviour over time. This involves the description of behaviour at various ages. We have now data regarding motor development, language development, intellectual development, social development, emotional development, etc. Such data have been acquired through two approaches, the longitudinal approach and the cross-sectional approach.

Longitudinal Method

The longitudinal method aims at the study of the changes taking place in one group of children over a period of time. It provides a picture of continuous growth; growth curves can be plotted on the basis of the data in such areas as language development, physical development, etc. One of the first of such studies is that by Shirley in 1931 on the motor, intellectual and personality development of 25 infants from birth to two years of age. In the first week they were examined daily; in the second week every other day; day and later once a week. Shirley was able to show the sequence in motor development of the children in the first two years. The Berkeley growth study was initiated in 1928 and the report was published in 1965. Sixty one infants were enrolled in the study. These persons were studied for over forty years. Various kinds of tests were given to them over the period. It is obvious that the longitudinal method is very costly and requires an enduring organisation.

Cross-sectional Method

The second method of studying development is what is known as the "Cross-sectional" methods. Most research in child development is along these lines. In 1968 the present author made a study of language development by using the word association method. The same list of one hundred Kannada words were given to 480 children of whom 240 were boys and 240 were girls. One-third of the children belonged to the rural families, one-third to the urban lower class families and the remaining one-third to the urban middle class families. One quarter were enrolled in the Kindergarten class, another quarter in the first grade, another quarter in the third grade and the last quarter in the fifth grade. The result of this study are given in Chapter V. In this manner it is possible to study children of the different age groups and study the development that is taking place in a given trait or skill. By using either the longitudinal or the cross sectional methods, normative data can be obtained.

Norms of Development

Norms are stages related to the age at which the various traits, skills or other characteristics appear. Arnold Gesell published norms for many aspects of development. For example, he found that most children generally start walking, speaking, show bowel control when they are 15 months old. In the same manner norms are worked out with respect to growth of intelligence, social behaviour, language development etc. But these norms merely indicate the average age at which certain behavioural characteristics manifest themselves; it must be remembered that there is an age " range" at which the skill appears and this is also described in the original study. For example, though the norm for walking alone may be 15 months, the range may vary from about eight months to about 18 months. But is must not be concluded that the child who starts walking at an age earlier than the norm is more active or intelligent and the child who starts walking at an age later than the norm is slow or dull. The norms helps us to understand the normal behaviour and development.

Thus, the present knowledge of child behaviour and development rests on careful studies made on hundreds of children using special techniques and tests. Gradually knowledge is being built up which will help to predict and control the phenomena with respect to child behaviour and development.

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30

The Development of Human Understanding

Piaget

Epistemology and Stage Theory

The understanding of understanding was the core of Piaget's work. Known technically as *epistemology*, the study of how children come to understand their world is still dominated by the work of this Swiss giant.

With a reference was made to the fact that children must walk before they can run. That in essence is what stage theory is all about: each step is built on what has gone before. To grasp this is already to appreciate one of Piaget's fundamental ideas.

The widespread acceptance of stage theory in education has had a profound effect on the way schools, particularly primary schools, are run. From this notion developed the concept of *readiness*: the child cannot move to certain skills until the earlier ones that form the basis are mastered.

Stages and Ages

Tables of Piaget's stages often allocate an age to each, implying that this is the age at which the stage should operate. Piaget's intention was to illustrate that stages of cognitive development occur in the same sequence for everyone, but he allowed that the ages at which stages are reached will vary depending on factors related both to maturation and experience. It is essential, therefore, to note that ages are indicated as a rough guide only.

Cognitive Development and Other Behaviour

For Piaget, the stages of cognitive development provide a basis for other behaviour. Thus, for example, he saw *moral development* as a progression of stages that depends on cognitive processes.

1. The Sensory-Motor Period

This stage goes from birth to about 24 months. The main *general characteristics* are the ability to move and to respond to the environment and to begin to communicate.

The infant is seen as being born with a set of reflexes. By interacting with the environment through

movement (hence the term sensory-motor) the infant sets in motion the assimilation/accommodation process, thus transforming the reflexes into *organised patterns of behaviour* which Piaget labelled *schemas*. Once established, schemas can then be used intentionally. An example of an organised pattern of behaviour being used intentionally during this period is the ability to obtain something out of reach. The infant learns techniques to achieve this.

Less easily observed is the movement from the *egocentric* state of the neonate. By egocentric Piaget did not mean selfish as we mean it; he referred to a state of mind in which there is no distinction between oneself and the rest of the world. By the end of the sensory-motor period children have moved away from totally egocentric thought to an understanding that there are objects permanently independent of themselves.

A way of observing evidence for the attaining of object permanence is to watch a child's reactions when a toy is taken away and hidden. At first, up to about six months, there will be no attempt to recover the toy; after this the probability is that the child will try to pull away the cloth or whatever is hiding it.

Egocentric behaviour does not disappear at the end of the sensory-motor period. Some vestiges of thinking that the world revolves around oneself remain even into adulthood in some cases.

Subdivisions of the sensory-motor period are as follows:

Approximate age in months	*Substage*	*Examples of activity*
0-2	Hereditary reflexes	Sucking, grasping.
2-4	Acquired adaptations	Two separate actions are brought together (for example, waving and sucking)
4-8	Circular reactions	Constant practice at actions until they can be produced at will.
8-12	Intentional behaviour	Pushing an obstacle aside.
12-18	Directed grouping	Varying movements as if to see what will result.
18-24	Symbolic representation	Actions can be represented symbolically without their actual performance. Piaget gave an example of his daughter opening her mouth to symbolise the opening of a box.

The Preoperational Period

This goes from about two years to seven. The main *general characteristics* are:

1. Elemenatary forms of *speech* are used in communication.
2. The use of *symbols* is developed.
3. Thinking is marked still by *egocentrism* and *animistic thinking* is evident, *i.e.* objects are regarded as alive or aware.

4. There is a preparation for *concrete operations* (see below).

The preoperational period can also be subdivided:

The preconceptual stage goes from about two to about four years.

There is a rapid development of *language* but some overgeneralisation occurs as the child makes early attempts at conceptualisation. All men may be 'daddy'.

Thinking remains egocentric, dominated by a sense of magical omnipotence. Children assume that because they have feelings and intentions and are alive all objects must be the same, *i.e.* thinking is *animistic*. What is more, nothing is seen as accidental: every event has a cause. The combination of all these factors can lead to children smacking a door which has banged back on them, saying 'naughty door'.

The prelogical or intuitive stage goes from about four to about seven years.

Prelogical reasoning is based on perceptual appearances. A frequently quoted experiment to test this is one assessing the concept of *conservation*. Two glass jars are shown, one tall and thin, the other short and squat. Liquid is poured into the shorter of the two and then, in full view of the child, into the taller. The child is asked whether there was more liquid in one glass or the other. At this stage of reasoning children say that the taller glass had more water.

Thinking is also limited by the difficulty the child has in taking into account more than one attribute of an object at a time. Thus a set of blue beads cannot at the same time be perceived as wooden as well as blue.

On the other hand, there is a leap forward in the *manipulation of symbols*. Here is an example of stage theory. The use of symbols begins in the sensory-motor period but by the end of the pre-operational period a child is able to manipulate symbols: a child of two can put bricks into a box; a child of seven can imagine doing this action.

The stage is thus set for the next period, that of concrete operations.

2. A slight detour for definitions

The word *operation* has for Piaget a precise meaning with three aspects:

1. Operations are actions carried out in the mind.
2. They are actions of great generality: combining, recombining, ordering and separating.
3. They do not exist alone, but are formed within an organised system known as a *group*.

The group is a concept fundamental to an understanding of what Piaget was driving at. He saw it as specifying some of the basic structures of human ability. An example of grouping comes in the mathematical process of adding and subtraction:

1. *Composition* — The result of the operation of adding is a third element within the system: $1 + 2 = 3$.
2. *Associativity* — The sequence in which operations take place is irrelevant, it is the *association* which is critical: $2 + 3 + 4$ produces the same result as $4 + 3 + 2$.

3. *Identity* — Among any elements there is always only one which does not alter other elements with which it is combined: 2 + 0 = 2.

4. *Reversibility* — Every element has an *inverse*. When any element is combined with its inverse the result is the identity element: the inverse of 3 is - 3, so 3 - 3 = 0.

3. The Period of Concrete Operations

This goes from seven to about 12 years. The main *general characteristic* is the development of reasoning about size, weight and number.

At this stage the child begins to think logically about things he has experienced. *Conservation* is mastered, as is the concept of *class* inclusion—that is, the child realises that the number of objects in a set remains constant even if the pattern is changed. The child can also think backwards and forwards in time—that is, has begun to master *reversibility*. In mathematical thinking this is evident when it is realised that if 2 + 2 = 4 then 4 - 2 must equal 2.

Underlying the development of operational thought is an increase in *flexibility*, seen by Piaget as being closely related to the ability to *decentre*. Decentration is the opposite of egocentric thinking; it means that one is able to see things from someone else's point of view.

4. The Period of Formal Operations

This goes from about 12 years to adulthood and the *main characteristic* is the ability to formulate general laws, principles and hypotheses.

The thinking of this period is, in essence, the sophisticated, flexible, symbolic thought of the adult. Children become able to reason about abstract propositions, objects or properties that they have never themselves experienced. Examples come from mathematics, chemistry or history. An example of Piaget's way of assessing thought at this period is the following:

Edith is fairer than Susan; Edith is darker than Lily. Who is the darkest?

Before reaching the period of formal operations children need the aid of dolls to work that one out.

Not everyone reaches this stages, even in adulthood.

Piagetian Theory: Some Miscellaneous Points

1. *Action.* Intelligence, for Piaget, rests solely on activity. Understanding is *constructed* by each individual, it is not given like a computer programme, nor is it copied from what is seen.
2. *Maturation* does no more than open or limit possibilities. Depending only on maturation is, for Piaget, waiting in vain.
3. *Language* is one manifestation of *general symbolic function*. It is not the creator of intelligent thought but its result.
4. *Equilibration and learning.* Piaget distinguishes between *development* and *learning*. The former is the basis of his theory: *the growth of thought through action*. Learning is an acquisition of knowledge from an extended source. This distinction has exerted a powerful influence on educational thought, particularly in the infant school, for from it has come the notion of

children needing to do things for themselves rather than to receive, and to understand rather than to repeat lessons parrot-fashion.

Piaget's Critics

In the past few years a group of psychologists have questioned much of Piaget's experimental work. It is important to note that the questions have not been directed at the whole corpus; what has been most under fire are his methods of testing his hypotheses and his conclusion about stages. Several tests have been reworked.

An example of reworking of a test is the use of a teddy bear in a conservation task. A test thus considered was one in which children are shown first two aligned sticks of equal length; one is then moved so that they are no longer in alignment. Under the age of seven children commonly fail to say that the two are still the same once they are presented differently. Piaget took this as a failure to decentre. Piaget's critics noted that the examiner always drew the child's attention to the movement of the sticks; in other words, the child might have *expected* a change because of the adult's action. *James McGonnigle* devised an ingenious way of overcoming this by having a 'naughty teddy' come and mix the sticks up. In other words, there was no reason for the child's to expect a change in length because the second presentation was teddy's work. McGonnigle found that many children between the ages of four and six maintained that the sticks were the same all along when this second presentation was used.

Margaret Donaldson, in her book *Children's Minds* (Fontata, 1978), has provided an excellent summary of Piaget's work and many examples of research which has questioned it. Much of this section has used her account. She concludes at one point that a main result of Piaget Questioning has been to argue that at least from the age of four the gap in reasoning power between children and adults is much less than Piaget and his followers imagine. What is more, children are not necessarily as egocentric in their thought as Piaget imagined.

A colloquial way of describing the attack on Piagetian findings is 'Piaget bashing'. While it would be foolish to accept every item of Piaget's work as for ever true, there is such richness there that the conceptual framework is likely to withstand bashing for sometime to come.

Other Theories of Understanding

The amount of space given to Piaget in most texts is an indication of the weight of his contribution to developmental psychology. Readers might be forgiven for imagining that no other theory exists.

In fact there have been several other approaches, some of which owe much to Piaget and some of which rework his examples within a different framework. *Learning theorists*, for example, argue that it is possible to explain Piaget's observations in terms of stimulus and response. *Heinz Werner* sees understanding as a process leading towards a steady increase in the way people can differentiate and organise their world. There are clear similarities with Gibson's theory of perception. *Jerome Bruner* is concerned especially with the *process* of knowing rather than knowledge itself. Readers interested in following up these theories are advised to start with Johanna Turner's *Cognitive Development* (Methuen Essential Psychology Series, 1975).

Conceptual Development

The Nature of the Concept

The bricks and mortar of epistemology can be found in children's concepts. A dictionary definition of conceptual thought is: 'That type or level of cognitive process which is characterised by the thinking of qualities, aspects and relations of objects.'

The essence of this definition is to do with the *relations* of objects: it in the *linking together* to certain qualities or aspects which leads to the formation of a concept. The two crucial points to note, then, about concepts are that they involve *complexity* and a *hierarchical structure*. An example is given in Fig. 30.1.

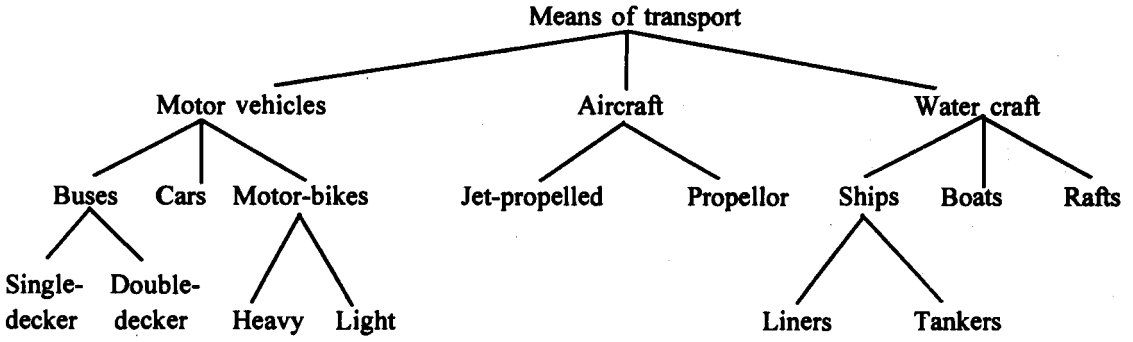

Fig. 30.1. The hierarchy of a concept.

Other characteristics of concepts are:

1. They are individual: although many people's concepts are closely alike no two people have exactly the same set.
2. They may relate to people, to objects or to abstract ideas.
3. They may be definite (5 cm of wood) or indefinite (some wood).
4. They may have emotional weighting; the closer they are to the self the more emotionally weighted they will be (concepts of religion and politics are examples).
5. Once developed they are frequently resistant to change.

The Development of the Concept

1. Concepts change: from the undefined to the specific;
   from the specific to the general;
   from the simple to the complex.

From this it is clear that general and undefined do not mean the same. Undefined means vague: the child responds to the mass or whole rather than putting the parts together to form a whole.

2. Some concepts depend on others; that is, they cannot be formed unless the earlier are present. An example is humour: one definition of the humorous situation or remark is that it depends on an element of the unexpected. So before one can appreciate that slipping on a banana

skin is funny one has to have developed the idea that most people walk upright most of the time.

3. The development of a concept goes hand in hand with an understanding of underlying meanings; children do not at first comprehend 'as if' sentences. So if one says to a young child 'take that with a pinch of salt' that child may not assume a questioning attitude—rather there may be a query about where the salt should be placed.

Some Specific Concepts

Life: As was noted above in the section on pre-operational thought, a child in this stage will think animistically-that is, will ascribe life to all and any object, be it a stone, a cushion, a cloud or the moon. Piaget suggested that there are four successive stages in animistic thinking:

Stage One (approximately four to six years): everything that moves in any way is seen as being conscious.

Stage Two (six to seven years): consciousness is ascribed to anything that moves—so the sun is alive, a stone is not.

Stage Three (eight to 10 years) sees a distinction between movement due to the object itself and movement due to an outside agent. The sun and clouds are conscious, bicycles are not.

Stage Four (11 years and upwards): consciousness is restricted to plants and animals or to animals alone.

Death: The concept of death is much more complex than that of life and its development is less well understood. By three most children can say something or other is dead but they may expect it to come to life again. It has been argued that there are nine or ten components to the concept, among which are universality, irreversibility and causality. Studies in Britain, America and India tend to point to the full concept being developed round about the age of eight but there is much individual variation.

The concept of death is one which becomes more emotionally laden with age and experience. For many adults death is so frightening that it has taken the place of sex as a taboo subject. Because of this fear adults tend to shy away from talking to children about the topic and may assume a greater knowledge in children than actually exists.

Causality: Many young children come to believe not only that their parents know everything and can do everything but also that they cause everything. Children who are exposed to fairy stories will come to look for magical causes.

In general, notions of physical causality come before psychological; a child will understand why clothes move on a washing line before comprehending what makes people angry or frightened. This is probably due to the fact that an adult is likely to explain the properties of wind but will not think of discussing emotions.

Space: Young children's concepts of space tend all to be distorted: they are close objects as larger than they really are and distant objects as smaller. As they handle objects they come first to be able to judge short distances accurately but longer distances remain difficult to judge. Accurate judgements over long distances may not be made until adolescence.

Some detailed aspects of space concepts are:

1. *Geometric form*: Many six-month-olds can distinguish between circles, triangles and squares. By two years they can often put shapes into the correct hole and by three they may be able to match by shape.
2. *Relative size* is judged with reasonable accuracy by three or four years—that is, a child of this age can usually point to the biggest or the smallest object. The judgment of the middle position comes much later, often not being achieved in some situations until eight or nine.
3. *Right and left* is for some children a bug-bear—some never learn to respond accurately without reflection to the order 'turn to your left'. Complete understanding of the concept, including the ability to point to someone else's right or left hand, may not be achieved before the age of 10 and is rare before seven.

Weight: Judgements of weight come much later than those of size and for sometime many children are misled by a small heavy object which they think must be light because of its size. Gradually experience teaches them that some objects are heavy, others light, irrespective of size, as they learn to pay attention of the material rather than the form.

Number: An ability to count to 10 is not the same as an ability to cope with the concepts of number, a point that many parents do not always grasp. Once children start school number concepts proper develop quickly. Simultaneously with the development of the concept of number as such comes the ability to use number-related words: more, less, four, several, and so on.

Time: Time concepts are developed more or less uniformly, at least in Western cultures. At first comes the ability to locate one event in terms of another: breakfast comes before dinner. Other concepts are developed as follows:

	Approximate age
Morning or afternoon	4
The day of the week	5
The approximate time	7
The month	7
The year	8
The day of the month	8
The time to go to bed	5
When to get up	6
When to go to school	6
The child's age	3
When their next birthday is	4
How old they will be at their next birthday	5

Telling the time also follows a reasonably consistent pattern: at first children tell time by the hour,

then by the half hour and then quarters. Telling the time with reasonable accuracy is usually developed by the age of six or seven.

The duration of time is a very different matter from the parroting of 'I am four' in reply to a question about age, and asking any child under the age of seven or eight to think in such terms is usually asking too much. Many children, and some adults, never develop a full concept of historical time; 'the olden days' are all one amorphous mass.

Social Concepts

One of the earliest examples of conceptual development comes at about a month when babies seem able to differentiate the human voice from other sounds. A month or so later they are able to differentiate the familiar from the strange and by eight months they seem sufficiently advanced to comprehend the meaning of facial expression.

A subset of social concepts is notions of age. At first children, understandably, relate age to size: an adult is judged older than a child. Examples of uncertainty in this area can be seen when a child meets a very small adult: the latter may be invited to play. By the age of nine age judgements are rather more firmly developed for at this stage their playmates ages become a matter of some preoccupation. Even throughout early adolescence, though, judgements of adults' ages are often hazy, as parents sometimes discover to their embarrassment.